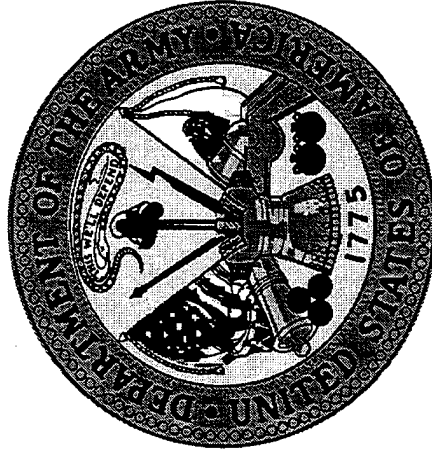


UNCLASSIFIED

Supporting Data FY 1997 Budget Estimate
Submitted to Congress - March 1996

DESCRIPTIVE SUMMARIES OF THE



DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

**RESEARCH, DEVELOPMENT, TEST AND EVALUATION
Army Appropriation, Budget Activities 4 and 5**

DEPARTMENT OF THE ARMY
OFFICE OF THE SECRETARY OF THE ARMY (FINANCIAL MANAGEMENT and COMPTROLLER)

"READINESS THROUGH MODERNIZATION"

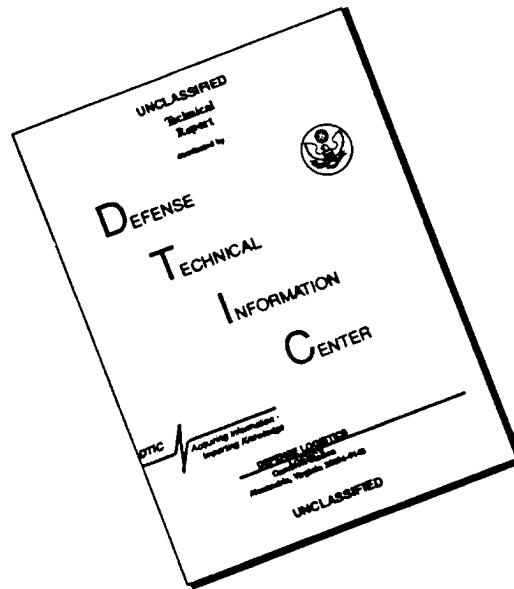
VOLUME II

19960514 025

UNCLASSIFIED

DTIC QUALITY INSPECTED 3

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

UNCLASSIFIED

**DESCRIPTIVE SUMMARIES FOR PROGRAM ELEMENTS
OF THE
RESEARCH, DEVELOPMENT, TEST AND
EVALUATION, ARMY
FY 1997**

**VOLUME II
Budget Activities 4 and 5**

**Department of the Army
Office of the Assistant Secretary of the Army (Financial Management and Comptroller)**

UNCLASSIFIED

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

UNCLASSIFIED

FY 1997 RDT&E, ARMY
PROGRAM ELEMENT DESCRIPTIVE SUMMARIES

INTRODUCTION AND EXPLANATION OF CONTENTS

1. General. This section has been prepared for the purpose of providing information concerning the Army Research, Development, Test and Evaluation program. The Descriptive Summaries are comprised of R-2 (Budget Item Justification Sheet) and R-3 (RDT&E Program Element/Project Cost Breakdown) Exhibits which provide narrative information on all RDT&E program elements and projects for the FY 1995, 1996, 1997 time period.

2. Relationship of the FY 1997 Budget Submission to the FY 1996 Budget submitted to Congress. This paragraph provides a list of program elements restructured, transitioned, or established to provide specific program identification.

A. Program Element Restructures. Explanations for these changes can be found in the narrative sections of the Program Element R-2/R-3 Exhibits.

OLD PE/PROJECT	NEW PROJECT TITLE	NEW PE/PROJECT
0601104A/BH50, BH53, BH55	Communications Research	0601102A/AH48
0602618A/AH80, 0603004A/DL94	Electric Gun Technology	0602618A/AH75
0602786A/AH20	Countermine Technology	0602712A/AH24
0603001A/DXXA, 0603710A/DK70, 0603772A/D101, 0604713A/D667	Force XXI Soldier	0603001A/DJ50
0603019A/DB94	Tractor Dump	0203735A/DC64
0603734A/DT08, 0602784A/A855 & AT42, and 0602782A/A779	Rapid Battlefield Visualization	0603734A/AT12
0603645A/D409 & DB88	Artillery Systems Dem/Val	0603854A/D505

UNCLASSIFIED

UNCLASSIFIED

A. Program Element Restructures (Continued)

OLD PE/PROJECT	NEW PROJECT TITLE	NEW PE/PROJECT
0603771A/DE20	Industrial Preparedness Man Tech	0708045A/DE25
0604645A/D2KT	AFAS Operational Test	0604854A/D2KT
0604645A/D417 & D418	CRUSADER - ED*	0604854A/D503
0604715A/DC91	Interactive Simulaton	0604760A/DC77
0604759A/DC55	Synthetic Theater of War	0604760A/DC73
0203740A/DC49	Gobal Command and Control System	0303150A/DC86
0303142A/D386	SCAMP Block II	0603856A/D389
0604759A/DC55	Developmental Simulation Technology	0604760A/DC74
0604817A/D482	All Services Cbt Ident Eval Team (ASCIET)	0604817A/D901
0605801A/MM43	Soldier Systems Command	0605801A/MM58
0605898A/MM03	Command Headquarters - MRDC	0605801A/M881
0303142A/D384	SMART-T Operational Test	0303142A/D2PT

Applicable portions of PE 0605896A, Base Operations - RDT&E, "J" Operation of Utilities and "M" Other Engineering, were restructured to a new PE 0605879A, Real Property Services (RPS).

* CRUSADER was previously known as Advanced Field Artillery System(AFAS) and Future Armored Resupply Vehicle (FARV).

UNCLASSIFIED

UNCLASSIFIED

B. FY 1997 Developmental Transitions.

<u>FROM</u> <u>PE/PROJECT</u>	<u>PROJECT TITLE</u>	<u>TO</u> <u>PE/PROJECT</u>
0602303A/A213	* Counter Active Protection	0603313A/D550
0603774A/D131	Long Range Advanced Scout Surv Sys (LRAS3)	0604710A/DL74

C. Establishment of New FY 1997 Program Elements/Projects. There are no major system new starts. Minor new initiatives for FY 1997 are shown below with asterisks. The remaining programs listed are outyear initiatives beyond FY 1997 or were previously funded from other Defense appropriations. The Tractor programs are initiatives moved from other programs.

TITLE

PE/PROJECT

Tractor Zinc	0602786A/AC60
Tractor Quake	0602786A/AC61
Tractor Union	0603005A/DC62
2.75" Anti-Air Technology Demonstration*	0603313A/D549
Tractor Quake	0603710A/DC63
Intelligent Support to Force XXI*	0305123A/DH12
Tactical Unmanned Ground Vehicle (TUG-V)	0604641A/DE47
Integrated Broadcast System*	0604739A/D702
Non-Lethal Programs*	0604802A/D712
Firefinder Preplanned Product Improvement (P3I)*	0604823A/DL85
ATCAS	0605854A/D509
Pyrotechnic Reliability and Safety*	0605805A/D296
Joint Aerostat Program Office	0102419A/DE55
Joint Tactical Ground Station (JTGS)*	0208053A/M635
Bradley A3 IOTE*	0203735A/D2TT
Abrams IOTE*	0203735A/D2UT

v

UNCLASSIFIED

UNCLASSIFIED

D. FY 1997 programs for which funding was shown in the FY 1996 President's Budget Submit (February 1995), but which are no longer funded.

<u>PE/PROJECT</u>	<u>TITLE</u>	<u>BRIEF EXPLANATION</u>
0203735A/D392	AGS Improvements	Program terminated.
0603001A/DC44	Tactical Logistics	Funds transferred to Soldier Survivability.
0603005A/A340	Producibility Technology	Lower priority effort became unfunded.
0604645A/D413	Armored Gun System (AGS)	Program terminated.
0605803A/M731	GIDEP/AGED	Project completed in FY 1996.
0605805A/D293	Field Artillery Ammunition (NATO)	Funds transferred to higher priority programs.

Descriptive summaries for PE 0603806A - NBC Defense Systems, AD and PE 0604806A - NBC Defense Systems, ED are not provided in this Army submission. Since these programs were transferred to Defense RDT&E in FY 1996, program details are available in the Defense RDT&E submission under PE 0603884BP and PE 0604384BP.

3. Classification. This document contains no classified data. Classified/Special Access Programs which are submitted offline are listed below.

0203735A/DC64	0603005A/DC82	0603238A/D182/D189
0203744A/DB75	0603009A	0603322A
0203806A	0603012A	0603639A
0203808A	0603013A	0603647A
0301359A	0603017A	0603710A/DC63
0602104A	0603018A	0603851A
0602122A	0603019A	0604649A/DG15
0602788A	0603020A	
0603122A		

UNCLASSIFIED

TABLE OF CONTENTS

BUDGET ACTIVITY PROGRAM ELEMENT

PE	PROGRAM ELEMENT TITLE	PAGE
#1 - BASIC RESEARCH		
1	0601101A In-House Laboratory Independent Research	1
2	0601102A Defense Research Sciences	12
3	0601104A University and Industry Research Centers	86
#2 - EXPLORATORY DEVELOPMENT		
4	0602105A Materials Technology	106
5	0602120A Sensors and Electronic Survivability	111
6	0602211A Aviation Technology	121
7	0602270A Electronic Warfare (EW) Technology	129
8	0602303A Missile Technology	136
9	0602308A Modeling and Simulation Technology	140
10	0602601A Combat Vehicle and Automotive Technology	146
11	0602618A Ballistics Technology	160
12	0602622A Chemical, Smoke and Equipment Defeating Technology	168
13	0602623A Joint Service Small Arms Program	173
14	0602624A Weapons and Munitions Technology	175
15	0602705A Electronics and Electronic Devices	186
16	0602709A Night Vision Technology	192
17	0602712A Countermine Systems Exploratory Development	195
18	0602716A Human Factors Engineering Technology	198
19	0602720A Environmental Quality Technology	204

TABLE OF CONTENTS

BUDGET ACTIVITY PROGRAM ELEMENT

PE	PROGRAM ELEMENT TITLE	PAGE
#2 - EXPLORATORY DEVELOPMENT - Continued		
20	0602782A Command, Control, Communications Technology	223
21	0602783A Computer and Software Technology	229
22	0602784A Military Engineering Technology	234
23	0602785A Manpower/Personnel/Training Technology	248
24	0602786A Logistics Technology	253
25	0602787A Medical Technology	268
26	0602789A Army Artificial Intelligence Technology	288
#3 - ADVANCED DEVELOPMENT		
27	0603001A Logistics Advanced Technology	290
28	0603002A Medical Advanced Technology	310
29	0603003A Aviation Advanced Technology	332
30	0603004A Weapons and Munitions Advanced Technology	348
31	0603005A Combat Vehicle and Automotive Advanced Technology	357
32	0603006A Command, Control and Communication Advanced Technology	369
33	0603007A Manpower, Personnel and Training Advanced Technology	381
34	0603105A Military Human Immunodeficiency Virus (HIV) Research	386
35	0603238A Air Defense/Precision Strike Technology	388
36	0603270A Electronic Warfare (EW) Technology	394
37	0603313A Missile and Rocket Advanced Technology	399
38	0603606A Landmine Warfare and Barrier Advanced Technology	420

TABLE OF CONTENTS

BUDGET ACTIVITY PROGRAM ELEMENT

PE	PROGRAM ELEMENT TITLE	PAGE
#3 - ADVANCED DEVELOPMENT - Continued		
39	0603607A Joint Service Small Arms Program	425
40	0603654A Line-of-Sight Technology Demonstration	428
41	0603710A Night Vision Advanced Technology	430
42	0603734A Military Engineering Advanced Technology	437
43	0603759A Chemical/Biological Defense and Smoke Advanced Technology Development	444
44	0603771A Army Industrial Preparedness Manufacturing Technology	445
45	0603772A Advanced Tactical Computer Science and Sensor Technology	449
#4 - DEMONSTRATION AND VALIDATION		
46	0603308A Army Missile Defense Systems Integration	457
47	0603619A Landmine Warfare and Barrier - Advanced Development	460
48	0603627A Smoke, Obscurant and Target Defeating System - Advanced Development	465
49	0603640A Artillery Propellant Development	469
50	0603645A Armored Systems Modernization - Advanced Development	474
51	0603649A Engineering Modification Equipment - Advanced Development	492
52	0603653A Advanced Tank Armament System	497
53	0603713A Army Data Distribution System	502
54	0603730A Tactical Surveillance System - Advanced Development (TIARA)	511
55	0603745A Tactical Electronic Support Systems - Advanced Development (TIARA)	515
56	0603747A Soldier Support and Survivability	519
57	0603760A Distributive Interactive Simulations - Advanced Development	537

TABLE OF CONTENTS

BUDGET ACTIVITY PROGRAM ELEMENT

PE	PROGRAM ELEMENT TITLE	PAGE
#4 - DEMONSTRATION AND VALIDATION - Continued		
58	0603766A Tactical Exploitation of National Capabilities (TENCAP) - Demonstration/Validation (TIARA)	540
59	0603774A Night Vision Systems - Advanced Development	545
60	0603790A NATO Research and Development	549
61	0603801A Aviation - Advanced Development	555
62	0603802A Weapons and Munitions - Advanced Development	569
63	0603804A Logistics and Engineering Equipment - Advanced Development	576
64	0603805A Combat Service Support Control System Evaluation and Analysis	611
65	0603807A Medical Systems - Advanced Development	623
66	0603854A Artillery Systems Demonstration and Validation	640
67	0603856A SCAMP BLK II (Space)	645
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT		
68	0604201A Aircraft Avionics	648
69	0604220A Armed, Deployable OH-58D	654
70	0604223A Comanche	657
71	0604270A Electronic Warfare (EW) Development	667
72	0604315A Tri-Service Standoff Attack Missile (TSSAM)	690
73	0604321A All Source Analysis System (TIARA)	692
74	0604325A Follow-On To TOW	701
75	0604604A Medium Tactical Vehicles	704
76	0604609A Smoke, Obscurant and Target Defeating System - Engineering Development	709

TABLE OF CONTENTS

BUDGET ACTIVITY PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT - Continued			
77	0604611A	Javelin	713
78	0604619A	Landmine Warfare	717
79	0604622A	Family of Heavy Tactical Vehicles	721
80	0604633A	Air Traffic Control	728
81	0604640A	Advanced Command and Control Vehicle	733
82	0604641A	Tactical Unmanned Ground Vehicle	738
83	0604642A	Light Tactical Wheeled Vehicle	741
84	0604645A	Armored Systems Modernization (ASM) - Engineering Development	746
85	0604649A	Engineer Mobility Equipment Development	758
86	0604710A	Night Vision Systems - Engineering Development	768
87	0604713A	Combat Feeding, Clothing, and Equipment	783
88	0604715A	Non-System Training Devices - Engineering Development	806
89	0604716A	Terrain Information - Engineering Development (TIARA)	824
90	0604739A	Integrated Broadcast Service - Modules	829
91	0604740A	Tactical Surveillance System - Engineering Development	832
92	0604741A	Air Defense Command, Control, Intelligence - Engineering Development	840
93	0604746A	Automatic Test Equipment Development	852
94	0604760A	Distributive Interactive Simulations - Engineering Development	864
95	0604766A	Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)	877
96	0604768A	Brilliant Anti-Armor (BAT) Submunition	886
97	0604770A	Joint Surveillance/Target Attack Radar System	900
98	0604778A	Positioning Systems Development (Space)	910

TABLE OF CONTENTS

BUDGET ACTIVITY PROGRAM ELEMENT

PE	PROGRAM ELEMENT TITLE	PAGE
#5 - ENGINEERING AND MANUFACTURING DEVELOPMENT - Continued		
99	0604780A Combined Arms Tactical Trainer (CATT)	917
100	0604801A Aviation - Engineering Development	922
101	0604802A Weapons and Munitions - Engineering Development	927
102	0604804A Logistics & Engineer Equipment - Engineering Development	951
103	0604805A Command, Control, Communications Systems - Engineering Development	992
104	0604807A Medical Materiel/Medical Biological Defense Equipment - Engineering Development	1010
105	0604808A Landmine Warfare/Barrier - Engineering Development	1026
106	0604814A Sense and Destroy Armor Munition - Engineering Development	1035
107	0604816A Longbow	1044
108	0604817A Combat Identification - Engineering & Manufacturing Development	1062
109	0604818A Army Tactical Command and Control Hardware & Software	1071
110	0604820A Radar Development	1079
111	0604823A Firefinder	1086
#6 - MANAGEMENT SUPPORT		
112	0604256A Threat Simulator Development	1089
113	0604258A Target Systems Development	1092
114	0604759A Major Test and Evaluation Investment	1097
115	0605103A Rand Arroyo Center	1107
116	0605301A Army Kwajalein Atoll	1111
117	0605601A Army Test Ranges and Facilities	1117

TABLE OF CONTENTS

BUDGET ACTIVITY PROGRAM ELEMENT

PE	PROGRAM ELEMENT TITLE	PAGE
#6 - MANAGEMENT SUPPORT - Continued		
118	0605602A Army Test Technology and Sustaining Instrumentation	1135
119	0605604A Survivability/Lethality Analysis	1144
120	0605605A DOD High Energy Laser System Test Facility (HELSTF)	1171
121	0605606A Aircraft Certification	1173
122	0605702A Meteorological Support to Research, Development, Testing & Evaluation Activities	1175
123	0605706A Materiel Systems Analysis	1181
124	0605709A Exploitation of Foreign Items	1186
125	0605712A Support of Operational Testing	1191
126	0605801A Programwide Activities	1205
127	0605802A International Cooperative Research and Development	1212
128	0605803A Technical Information Activities	1214
129	0605805A Munitions Standardization Effectiveness and Safety	1231
130	0605853A Environmental Conservation	1242
131	0605854A Pollution Prevention	1248
132	0605856A Environmental Compliance - Research, Development, Testing & Evaluation	1255
133	0605876A Minor Construction - Research, Development, Testing & Evaluation	1263
134	0605878A Maintenance and Repair - Research, Development, Testing & Evaluation	1270
135	0605879A Operation of Utilities & Other Engineering	1277
136	0605896A Base Operations - Research, Development, Testing & Evaluation	1281
137	0605898A Management Headquarters (Research and Development)	1288

TABLE OF CONTENTS

BUDGET ACTIVITY PROGRAM ELEMENT

	PE	PROGRAM ELEMENT TITLE	PAGE
#7 - OPERATIONAL SYSTEM DEVELOPMENT			
138	0102419A	Aerostat Joint Program Office	1293
139	0203726A	Advanced Field Artillery Tactical Data System	1296
140	0203735A	Combat Vehicle Improvement Programs	1305
141	0203740A	Maneuver Control System	1333
142	0203744A	Aircraft Modifications/Product Improvement Program	1347
143	0203752A	Aircraft Engine Component Improvement Program	1359
144	0203758A	Digitization	1364
145	0203801A	Missile/Air Defense Product Improvement Program	1368
146	0203802A	Other Missile Product Improvement Programs	1382
147	0208010A	Joint Tactical Communications Program (TRI-TAC)	1403
148	0208053A	Joint Tactical Ground System (TIARA)	1407
149	0303140A	Communications Security (COMSEC) Equipment	1410
150	0303142A	Satellite Communications (SATCOM) Ground Environment (SPACE)	1420
151	0303150A	Army Global Command and Control System (AGCCS)	1449
152	0305128A	Security and Intelligence Activities	1453
153	0603778A	Multiple Launch Rocket System Product Improvement Program	1456
154	0708045A	Army Industrial Preparedness Manufacturing Technology	1471

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Advanced Command and Control Vehicle	0604640A	733
Advanced Field Artillery Tactical Data System	0203726A	1296
Advanced Tactical Computer Science and Sensor Technology	0603772A	449
Advanced Tank Armament System	0603653A	497
Aerostat Joint Program Office	0102419A	1293
Air Defense Command, Control, Intelligence - Engineering Development	0604741A	840
Air Defense/Precision Strike Technology	0603238A	388
Air Traffic Control	0604633A	728
Aircraft Avionics	0604201A	648
Aircraft Certification	0605606A	1173
Aircraft Engine Components Improvement Program	0203752A	1359
Aircraft Modifications/Product Improvement Program	0203744A	1347
All Source Analysis System (TIARA)	0604321A	692
Armed, Deployable OH-58D	0604220A	654
Armored Systems Modernization (ASM) - Engineering Development	0604645A	746
Armored Systems Modernization - Advanced Development	0603645A	474
Army Artificial Intelligence Technology	0602789A	288
Army Data Distribution System	0603713A	502
Army Global Command and Control System (AGCCS)	0303150A	1449
Army Industrial Preparedness Manufacturing Technology	0708045A	1471
Army Industrial Preparedness Manufacturing Technology	0603771A	445
Army Kwajalein Atoll	0605301A	1111
Army Missile Defense Systems Integration	0603308A	457
Army Tactical Command and Control Hardware & Software	0604818A	1071
Army Test Ranges and Facilities	0605601A	1117

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Army Test Technology and Sustaining Instrumentation	0605602A	1135
Artillery Propellant Development	0603640A	469
Artillery Systems Demonstration and Validation	0603854A	640
Automatic Test Equipment Development	0604746A	852
Aviation - Advanced Development	0603801A	555
Aviation - Engineering Development	0604801A	922
Aviation Advanced Technology	0603003A	332
Aviation Technology	0602211A	121
Ballistics Technology	0602618A	160
Base Operations - Research, Development, Testing & Evaluation	0605896A	1281
Brilliant Anti-Armor (BAT) Submunition	0604768A	886
Chemical, Smoke and Equipment Defeating Technology	0602622A	168
Chemical/Biological Defense and Smoke Advanced Technology Development	0603759A	444
Comanche	0604223A	657
Combat Feeding, Clothing, and Equipment	0604713A	783
Combat Identification - Engineering & Manufacturing Development	0604817A	1062
Combat Service Support Control System Evaluation and Analysis	0603805A	611
Combat Vehicle and Automotive Advanced Technology	0603005A	357
Combat Vehicle and Automotive Technology	0602601A	146
Combat Vehicle Improvement Programs	0203735A	1305
Combined Arms Tactical Trainer (CATT)	0604780A	917
Command, Control and Communication Advanced Technology	0603006A	369
Command, Control, Communications Systems - Engineering Development	0604805A	992
Command, Control, Communications Technology	0602782A	223
Communications Security (COMSEC) Equipment	0303140A	1410

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Computer and Software Technology	0602783A	229
Countermine Systems Exploratory Development	0602712A	195
Defense Research Sciences	0601102A	12
Digitization	0203758A	1364
Distributive Interactive Simulations - Advanced Development	0603760A	537
Distributive Interactive Simulations - Engineering Development	0604760A	864
DOD High Energy Laser System Test Facility (HELSTF)	0605605A	1171
Electronic Warfare (EW) Technology	0603270A	394
Electronic Warfare (EW) Technology	0602270A	129
Electronic Warfare (EW) Development	0604270A	667
Electronics and Electronic Devices	0602705A	186
Engineer Mobility Equipment Development	0604649A	758
Engineering Modification Equipment - Advanced Development	0603649A	492
Environmental Compliance - Research, Development, Testing & Evaluation	0605856A	1255
Environmental Conservation	0605853A	1242
Environmental Quality Technology	0602720A	204
Exploitation of Foreign Items	0605709A	1186
Family of Heavy Tactical Vehicles	0604622A	721
Firefinder	0604823A	1086
Follow-On To TOW	0604325A	701
Human Factors Engineering Technology	0602716A	198
In-House Laboratory Independent Research	0601101A	1
Integrated Broadcast Service - Modules	0604739A	829
International Cooperative Research and Development	0605802A	1212
Javelin	0604611A	713

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Joint Service Small Arms Program	0603607A	425
Joint Service Small Arms Program	0602623A	173
Joint Surveillance/Target Attack Radar System	0604770A	900
Joint Tactical Communications Program (TRI-TAC)	0208010A	1403
Joint Tactical Ground System (TIARA)	0208053A	1407
Landmine Warfare	0604619A	717
Landmine Warfare and Barrier - Advanced Development	0603619A	460
Landmine Warfare and Barrier Advanced Technology	0603606A	420
Landmine Warfare/Barrier - Engineering Development	0604808A	1026
Light Tactical Wheeled Vehicle	0604642A	741
Line-of-Sight Technology Demonstration	0603654A	428
Logistics & Engineer Equipment - Engineering Development	0604804A	951
Logistics Advanced Technology	0603001A	290
Logistics and Engineering Equipment - Advanced Development	0603804A	576
Logistics Technology	0602786A	253
Longbow	0604816A	1044
Maintenance and Repair - Research, Development, Testing & Evaluation	0605878A	1270
Major Test and Evaluation Investment	0604759A	1097
Management Headquarters (Research and Development)	0605898A	1288
Maneuver Control System	0203740A	1333
Manpower, Personnel and Training Advanced Technology	0603007A	381
Manpower/Personnel/Training Technology	0602785A	248
Materials Technology	0602105A	106
Materiel Systems Analysis	0605706A	1181
Medical Advanced Technology	0603002A	310

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Medical Materiel/Medical Biological Defense Equipment - Engineering Development	0604807A	1010
Medical Systems - Advanced Development	0603807A	623
Medical Technology	0602787A	268
Medium Tactical Vehicles	0604604A	704
Meteorological Support to Research, Development, Testing & Evaluation Activities	0605702A	1175
Military Engineering Advanced Technology	0603734A	437
Military Engineering Technology	0602784A	234
Military Human Immunodeficiency Virus (HIV) Research	0603105A	386
Minor Construction - Research, Development, Testing & Evaluation	0605876A	1263
Missile and Rocket Advanced Technology	0603313A	399
Missile Technology	0602303A	136
Missile/Air Defense Product Improvement Program	0203801A	1368
Modeling and Simulation Technology	0602308A	140
Multiple Launch Rocket System Product Improvement Program	0603778A	1456
Munitions Standardization Effectiveness and Safety	0605805A	1231
NATO Research and Development	0603790A	549
Night Vision Advanced Technology	0603710A	430
Night Vision Systems - Advanced Development	0603774A	545
Night Vision Systems - Engineering Development	0604710A	768
Night Vision Technology	0602709A	192
Non-System Training Devices - Engineering Development	0604715A	806
Operation of Utilities & Other Engineering	0605879A	1277
Other Missile Product Improvement Programs	0203802A	1382
Pollution Prevention	0605854A	1248
Positioning Systems Development (Space)	0604778A	910

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Programwide Activities	0605801A	1205
Radar Development	0604820A	1079
Rand Arroyo Center	0605103A	1107
Satellite Communications (SATCOM) Ground Environment (SPACE)	0303142A	1420
SCAMP BLK II (Space)	0603856A	645
Security and Intelligence Activities	0305128A	1453
Sense and Destroy Armor Munition - Engineering Development	0604814A	1035
Sensors and Electronic Survivability	0602120A	111
Smoke, Obscurant and Target Defeating System - Advanced Development	0603627A	465
Smoke, Obscurant and Target Defeating System - Engineering Development	0604609A	709
Soldier Support and Survivability	0603747A	519
Support of Operational Testing	0605712A	1191
Survivability/Lethality Analysis	0605604A	1144
Tactical Electronic Support Systems - Advanced Development (TIARA)	0603745A	515
Tactical Exploitation of National Capabilities (TENCAP) - Demonstration/Validation (TIARA)	0603766A	540
Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)	0604766A	877
Tactical Surveillance System - Advanced Development (TIARA)	0603730A	511
Tactical Surveillance System - Engineering Development	0604740A	832
Tactical Unmanned Ground Vehicle	0604641A	738
Target Systems Development	0604258A	1092
Technical Information Activities	0605803A	1214
Terrain Information - Engineering Development (TIARA)	0604716A	824
Threat Simulator Development	0604256A	1089
Tri-Service Standoff Attack Missile (TSSAM)	0604315A	690
University and Industry Research Centers	0601104A	86

ALPHABETICAL LISTING

Program Element Title

Weapons and Munitions - Advanced Development
 Weapons and Munitions - Engineering Development
 Weapons and Munitions Advanced Technology
 Weapons and Munitions Technology

PE	PAGE
0603802A	569
0604802A	927
0603004A	348
0602624A	175

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603308A Army Missile Defense Systems

Integration

PROJECT

D990

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D990 Theater Missile Defense (TMD) System Integration	0	23329	2884	2886	2877	2865	2842	Continuing	Continuing

A. Mission Description and Budget Item Justification: Funds initiatives directed by U.S. Army Space and Strategic Defense Command in its capacity as the U.S. Army advocate, integrator, and focal point for TMD operations. USASDDC is empowered by the Department of the Army to serve as the Department level, operational representative for theater missile defense. This program conducts systems analysis, studies, and experimentation designed to validate and integrate the pillars of TMD: active defense, passive defense, attack operations, and battle management/command, control, communications, computers, and intelligence functions. This integration program produces hardware and software solutions, doctrinal and procedural solutions, interfaces, and architectures; these inter-pillar and intra-pillar products, required to accomplish the integrated TMD mission, exceed the scope of other programs. This program supports the milestone decisions for active defense missile and C4I systems, as well as Aviation and Artillery. This Project focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of TMD and is appropriately funded in Budget Activity 4.

Acquisition Strategy: Program is continuous. Planned accomplishments will be performed by various performers.

FY 1995 Accomplishments: There were no projects for TMD Systems Integration funded in FY 95.

FY 1996 Planned Program:

- 2832 Conduct systems analysis, studies, and experimentation designed to validate and integrate the pillars of TMD.
- 19911 Missile Defense Battle Integration Center funding; provides upgrades to the Synthetic Theater of War (STOW) combat environment; complete the development of the Distributed Interactive Simulation (DIS) interface; provides the STOW environment in all tactical operations centers.
- 520 SBIR/STTR.
- 66 Revised Economic Assumptions not available for execution.
- Total 23329

FY 1997 Planned Program:

- 2884 Conduct testing and exercising prototypical hardware and software related to integrated TMD operations, enhancements to models and simulations, systems analysis and studies regarding TMD issues.
- Total 2884

Project D990

Page 1 of 3 Pages

Exhibit R-2 (PE 0603308A)

457

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
4 - Demonstration and Validation	0603308A Army Missile Defense Systems Integration	D990	
B. Project Change Summary			
Previous President's Budget (FY 1996)		FY 1995	FY 1996
Appropriated Amount (FY 1995)		0	2985
Adjustment to FY 1995			
Appropriated Amount (FY 1996)			23565
Adjustment to FY 1996			-236
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-101
Current President's Budget Submit		0	23329
			2884
Change Summary Explanation:			
Funding: FY 96: Revised Economic Assumptions (-236)			
C. Other Program Funding Summary: There are no other related RDTE appropriation efforts.			
D. Schedule Profile: These efforts are continuous in nature; therefore, no milestone or events are provided.			
Project D990		Exhibit R-2 (PE 0603308A)	

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

**0603308A Army Missile Defense Systems
Integration**

PROJECT

D990

A. Project Cost Breakdown
Program Management Support
Total

	FY 1995	FY 1996	FY 1997
	0	23329	2884
		23329	2884

B. Budget Acquisition History and Planning Information: Not applicable.

Project D990

Page 3 of 3 Pages

Exhibit R-3 (PE 0603308A)

459

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE		March 1996	
BUDGET ACTIVITY		PE NUMBER AND TITLE									
4 - Demonstration and Validation		0603619A Landmine Warfare and Barrier - Advanced Development									
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate		Cost to Complete	Total Cost
Total Program Element (PE) Cost		23378	31942	16464	11707	9985	11479	11085		Continuing	Continuing
D005 Landmine Advanced Development		0	0	0	4052	4613	4586	0		0	13251
D606 Countermine/Barrier Advanced Development		23378	31942	16464	7655	5372	6893	11085		Continuing	Continuing

Mission Description and Budget Item Justification: This program element provides for advanced development of new mine and countermine systems by prototyping modern munitions technology, advanced development sensors, logic networks, fuzes, power sources, warhead components and modules into complete systems. Development of minefield command and control equipment will provide new capabilities in landmine warfare and will move the future Army toward the intelligent minefield. It also provides for the initiation and/or continuation of advanced development of the Airborne Stand-off Minefield Detection System (ASTAMIDS), the Handheld Stand-off Minefield Detection System (HSTAMIDS), Ground Stand-off Minefield Detection System (GSTAMIDS) and for mine neutralization with the Explosive Stand-off Minefield Breacher (ESMB) and the Anti-personnel Obstacle Breaching System (APOBS). This program element supports Advanced Development efforts and is, therefore, appropriately placed in Budget Activity 4.

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603619A Landmine Warfare and Barrier -

Advanced Development

PROJECT

D606

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D606 Countermine/Barrier Advanced Development	23378	31942	16464	7655	5372	6893	11085	Continuing	Continuing

A. Mission Description and Budget Item Justification: This project provides for advanced development of new countermine systems by prototyping advanced sensors for evaluation of neutralizing, clearing, breaching and detection concepts which will enhance the U.S. capability in countermine warfare. The program includes the Airborne Stand-off Minefield Detection System (ASTAMIDS), the Handheld Stand-off Minefield Detection System (HSTAMIDS), Ground Stand-off Minefield Detection System (GSTAMIDS), Explosive Stand-off Minefield Breacher (ESMB), and Anti-personnel Obstacle Breaching System (APOBS). The program provides for proof-of-principle for these systems.

Acquisition Strategy: ASTAMIDS and HSTAMIDS - RDTE with sole source production to RDTE contractor; ESMB - RDTE with competitive production.

FY 1995 Accomplishments:

- 650 Fabricated APOBS Flight Test Hardware and Conducted Flight Tests
- 10300 Completed ASTAMIDS Detail Hardware Design
- 11428 Continued ASTAMIDS Prototype Development
- 1000 ASTAMIDS Test Planned and Site Prepared
- Total 23378

FY 1996 Planned Program:

- 9989 Conduct System Design and Preliminary Design Reviews for ESMB
- 6887 Initiate Advanced Development Design for HSTAMIDS
- 10563 Complete ASTAMIDS Development/Fabrication of Prototype
- 3700 Initiate/Complete Development and Early User Tests of ASTAMIDS
- 713 SBIR/STTR
- 90 Revised Economic Assumptions not available for execution
- Total 31942

Project D606

Page 2 of 5 Pages

Exhibit R-2 (PE 0603619A)

461

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

**0603619A Landmine Warfare and Barrier -
Advanced Development**

PROJECT

D606

FY 1997 Planned Program:

- | | | |
|-------|-------|---|
| • | 5872 | Complete Technical Test and Evaluation for ESMB |
| • | 750 | Conduct Milestone II Review for ESMB |
| • | 9842 | Develop HSTAMIDS Prototype |
| Total | 16464 | |

Total 16464

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year 1997 since

FY 1996 President's Budget

Current President's Budget Submit

Change Summary Explanation:

Funding: FY 1995 - Below threshold reprogramming from PE 0604808A for APOBS.

C. Other Program Funding Summary

RDTE, 0604808.D415, Mine Neutralization/

Detection

OPA3, S11500, ASTAMIDS

OPA3, R68200, HSTAMIDS

OPA3, M80300, ESMB

<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	To Compl	Total Cost
462	1881	14232	22866	36637	19964	17054	Cont'd	Cont'd
					11280	11201	Cont'd	Cont'd
				3772	3742	6372	Cont'd	Cont'd
						3430	Cont'd	Cont'd

Project D606

Page 3 of 5 Pages

Exhibit R-2 (PE 0603619A)

462

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603619A Landmine Warfare and Barrier -

D606

Advanced Development

D. Schedule Profile

FY 1997

FY 1996

FY 1995

4

3

2

1

4

3

2

1

4

3

2

1

Conducted APOBS Flight Tests

Conduct System Design and Preliminary

Design Reviews for ESMB

Initiate Advanced Development Design for

HSTAMIDS

Complete ASTAMIDS

Development/Fabrication of Prototype

Initiate Development Tests and Early User

Tests of ASTAMIDS

Complete Technical Test and Conduct

Milestone II Review for ESMB

Conduct HSTAMIDS Technical Testing

* Milestone Completed

X

X

Project D606

Page 4 of 5 Pages

Exhibit R-2 (PE 0603619A)

463

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
4 - Demonstration and Validation	0603619A Landmine Warfare and Barrier - Advanced Development			D606
A. Project Cost Breakdown				
Development Primary Hardware		FY 1995	FY 1996	FY 1997
Test and Evaluation		19227	21764	9362
Government Engineering		675	2100	4050
Government Program Management		2745	6492	2452
SBIR/STTR		731	550	600
Revised Economic Assumption			713	
Total		23378	31942	16464
B. Budget Acquisition History and Planning Information	Not Applicable			
Project D606				
			Page 5 of 5 Pages	Exhibit R-3 (PE 0603619A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603627A Smoke, Obscurant and Target Defeating

DE79

System - Advanced Development

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DE79 Smoke, Obscurant-Advanced Development	3077	3160	6380	5631	4798	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: U.S. Forces must be able to effectively neutralize and degrade directed energy weapon systems and threat electro-optical systems/smart weapons that operate in the full range of the electro-magnetic spectrum. This program element supports the Demonstration/Validation (DEMVAl) of logistically supportable, high performance smoke and obscurant agents, munitions and devices to improve the survivability of the combined arms force and complement combined weapons systems. Improvements are sought across the entire multi-spectral range from visual through infrared (IR) and millimeter wavelengths (MMW) radar for incorporation into self-protection large area and projected smoke systems. The smoke obscurant technologies supported by this program enhance smoke systems as combat multipliers. This program element focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of Smoke, Obscurant & Equip Systems Engineering and is correctly placed in Budget Activity 4.

Acquisition Strategy: Project DE79 Smoke, Obscurant-Advanced Development: The M157A2 Smoke Generator System was type classified from the demonstration/validation phase. The M157A2 production phase will be a competitive, two-year multi-year contract, with priced options. The Light Vehicle Obscurant Screening System (LVOSS) is an in-house effort and will be type classified from the demonstration/validation phase. A make or buy study will be conducted in FY 96 for production of the LVOSS launcher and grenade.

FY 1995 Accomplishments:

- 60 LVOSS-Transitioned proponency from U.S. Armor School to the U. S. Army Military Police School
- 1397 LVOSS-Evaluated prototype for further development
- 1120 LVOSS-Selected materials and hardware for system design
- 500 Conducted Milestone III IPR for M157A1E1 Multi-Fuel Materiel Change
- Total 3077

FY 1996 Planned Program:

- 60 LVOSS-Conduct Milestone I/II In-Process Review
- 740 LVOSS-Complete Prototype Design Package
- 1200 LVOSS-Fabricate Pre-Production Test (PPT) Hardware
- 1123 LVOSS-Conduct PPT
- 28 SBIR/STTR
- 9 Revised Economic Assumption not available for execution
- Total 3160

Project DE79

Page 1 of 4 Pages

Exhibit R-2 (PE 0603627A)

465

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603627A Smoke, Obscurant and Target Defeating

DE79

System - Advanced Development

FY 1997 Planned Program:

- 1800 LVOSS-Fabricate Production Qualification Test (PQT) Hardware
- 2813 LVOSS-Conduct PPQT and Systems Operational Modeling
- 1767 LVOSS-Systems Engineering, Planning and Documentation

Total 6380

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

FY 1996

FY 1997

3248

6567

2789

2740

+337

3192

-32

-187

3160

6380

3077

C. Other Program Funding Summary

RDTE,A Budget Activity 5 PE 0604609A Project

D200 Smoke/Obscurant

OPA-3, Appropriation

G70700 - LVOSS

M99104 - M157A2 Smoke Generator

FY 1995

5612

FY 1996

1945

FY 1997

0

FY 1998

0

FY 1999

2745

FY 2000

9037

FY 2001

11186

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

To

Compl

Cont'd

Total

Cost

Cont'd

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603627A Smoke, Obscurant and Target Defeating
System - Advanced Development

PROJECT

DE79

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
LVOSS-Fabricate PQT Hardware										X		
LVOSS-Conduct PQT											X	
LVOSS-Systems Engineering Planning and Documentation											X	
LVOSS-IOTE												X

Project DE79

Page 3 of 4 Pages

Exhibit R-2 (PE 0603627A)

467

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
4 - Demonstration and Validation	0603627A Smoke, Obscurant and Target Defeating System - Advanced Development			DE79
A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997	
Primary Hardware Development	705	385	385	
Development Spt Equipment Acquisition	65	85	85	
Systems Engineering	616	505	505	
Integrated Logistics Support	80	95	115	
Quality Assurance	85	85	85	
Reliability, Maintainability and Availability	50	75	75	
Configuration Management	86	85	175	
Technical Data	55	187	300	
Production Qualification Test	250	909	2513	
Initial Operational Test and Evaluation			1200	
Contractor Engineering Support	225	95	150	
Government Engineering Support	500	400	367	
Program Management	360	254	425	
Total	3077	3160	6380	
B. Budget Acquisition History and Planning Information:	Not applicable.			

Project DE79

Page 4 of 4 Pages

Exhibit R-3 (PE 0603627A)

468

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603640A Artillery Propellant Development

DB91

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DB91 Artillery Propellant Development	24638	21347	18450	9188	0	0	0	0	127660

A. Mission Description and Budget Item Justification: This program element is a dual-faceted program focused on efforts associated with development of the Modular Artillery Charge System (MACS) and the 155mm Advanced Solid Propellant Armament (ASP-A). The MACS is a solid propellant charge system consisting of two different types of charge increments, designated the XM231 and XM232. Each of these increments contains propellant, center core ignition elements, wear additives, flash and blast reducers and decoupling agent in a combustible case. MACS achieves zoning through the use of multiple increments of XM231 and XM232. MACS continues the older uncharge development which used a single charge increment, the XM230, to achieve zoning. The ASP-A consists of the XM297 Cannon, its Laser Ignition System (LIS), the XM200 Gun Mount and the XM194 Gun Mount. The XM297, LIS and the XM200 are being developed for the Crusader self-propelled howitzer (SPH). The XM194 is being developed to allow "bolt-in/bolt-out" integration of the XM297 into the M109A6 Paladin SPH. This program element focuses on the technology demonstration and validation of the Modular Artillery Charge System (MACS) and the 155mm Advanced Solid Propellant Armament (ASP-A) and is correctly placed in Budget Activity 4.

FY 1995 Accomplishments:

- 21084 XM230: Core igniter development, stand alone bottom charge development. Program renamed Modular Artillery Charge System (MACS); (XM231/232); ASP-A: Continued development of XM297 cannon, its laser ignition system and the XM194 gun mount.
- 870 Project management support and management engineering services.
- 2684 ASP-A: Continued XM297 Engineering Development Testing (EDT), including completion of EDT phases 5 and 6, initiation of phase 7, completion of the first pre-fatigue test and initiation of the second; continued testing of the laser ignition system including laser window testing and support of XM297 testing; completed a gun mount recoil module test.

Total 24638

FY 1996 Planned Program:

- 17921 MACS: Support the XM297 program; ASP-A: Continued development of the XM297 cannon and its laser ignition system; initiate development of XM200 gun mount.
- 600 Project management support and management engineering services.
- 2290 ASP-A: Continue XM297 Engineering Development Testing, including completion of EDT phases 7 and 8 and 2nd pre-fatigue test; conduct of the third pre-fatigue test; hydraulic fatigue testing of two each XM297 tubes and breeches.
- 476 SBIR/STTR.
- 60 Revised Economic Assumptions not available for execution.

Total 21347

Project DB91

Page 1 of 5 Pages

Exhibit R-2 (PE 0603640A)

469

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603640A Artillery Propellant Development

DB91

FY 1997 Planned Program:

- 10200 MACS: Continue development of the XM297 cannon, its laser ignition system and the XM200 gun mount; establish the Interim Safe Fatigue Life of the XM297 cannon.
- 600 Project management support and management engineering services.
- 7650 MACS: Complete Engineering Development Testing and initiate developmental and operational testing DT/OT; ASP-A: Continue Engineering Development Testing (phases 9 and 10); continue hydraulic fatigue testing and initiate first wear test; conduct thermal management test of the XM297 cannon.

Total 18450

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Value (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995
24638FY 1996
10946FY 1997
1910021563
-216

-650

21347
18450

Change Summary Explanation:

Funding: Adjustments in FY 96 are the result of Revised Economic Assumptions (-216).

Decrease in FY97 is the result of Revised Economic Assumptions (-650).

C. Other Program Funding Summary: None.

D. Schedule Profile

	FY 1995		FY 1996		FY 1997			
	1	2	3	4	1	2	3	4
Acquisition Milestones								
Milestone II IPR (MACS)								
Acquisition Milestones								
Milestone III IPR (MACS)								
Engineering Milestones								
Combustible Case Design Freeze (MACS)								

Project DB91

Page 2 of 5 Pages

Exhibit R-2 (PE 0603640A)

470

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603640A Artillery Propellant Development

DB91

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
XM297 Cannon Milestones - 1st Pre-Fatigue Test		X*										
XM297 Cannon Milestones - 2nd Pre-Fatigue Test				X								
XM297 Cannon Milestones - Hydraulic Fatigue Testing					X							
XM297 Cannon Milestones - 3rd Pre-Fatigue Test							X					
XM297 Cannon Milestones - Interim Safe Fatigue Life Test									X			
XM297 Cannon Milestones - Thermal Management Test										X		
XM297 Cannon Milestones - 1st Wear Test											X	

* Milestones completed.

Project DB91

Page 3 of 5 Pages

Exhibit R-2 (PE 0603640A)

471

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				
4 - Demonstration and Validation	0603640A Artillery Propellant Development			March 1996	DB91
A. Project Cost Breakdown					
Product Development	FY 1995	FY 1996	FY 1997		
Support and Management	21084	17921	10200		
Test and Evaluation	870	600	600		
Revised Economic Assumptions	2684	2290	7650		
Total	24638	536	18450		
		21347			
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Government	Method/Type	Award or Obligation	Performing Activity	Total Prior to FY 1995	Budget to Complete FY 1997
Activity	Vehicle	Date	EAC	FY 1995	FY 1996
Product Development Organizations					
ARMTEC Defense	SS/CPIF	Aug 92	5619	3244	800
Products,					
Coachella, CA					
Olin Corp, St.	FF	Jul 94	1293	264	300
Petersburg, FL					
Olin Corp,	FF	Sep 94	2034	919	360
Marion., IL (Load,					
Assembly & Pac)					
DSTI, Greenbelt,	FF	May 94	2865	1265	250
MD					
Hi Shear,	FF	Mar 95	147	147	
Torrence, CA					
United Defense,	FF	TBD	105		105
LP, York, PA					
Other contracts				400	110
(\$100K or less)					400
AMCCOM,				40286	7330
Various activities				17866	11201
					6188
					82871
Project DB91				Exhibit R-3 (PE 0603640A)	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	March 1996	PROJECT		
BUDGET ACTIVITY		PE NUMBER AND TITLE				DB91				
4 - Demonstration and Validation		0603640A Artillery Propellant Development				DB91				
Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Activity	FFP				2474		1573			4047
Radford Army Ammunition Plant					2227	477	1244	950		4898
Army Research Laboratory,										
Adelphi, MD						100	100	100		300
Wright-Paterson AFB, Dayton, OH					13	603	167			783
Various activities					2088	870	600	600		4758
Support and Management Organizations										
AMCCOM,					710	2234	1890	7250	2000	14084
Various activities					147	450	400	400		1397
Test and Evaluation Organizations										
TECOM, Yuma, AZ										
AMCCOM, Dover, NJ										
Government Furnished Property: None										
Subtotal Product Development					51092	21084	17921	10200	6588	106885
Subtotal Support and Management					2088	870	600	600	600	4758
Subtotal Test and Evaluation					857	2684	2290	7650	2000	15481
SBIR/STTR							476			626476
Revised Economic Assumptions							60			60
Total Project					54037	24638	21347	18450	9188	127660

Project DB91

Page 5 of 5 Pages

Exhibit R-3 (PE 0603640A)

Project DB91

Page 5 of 5 Pages

Exhibit R-3 (PE 0603640A)

473

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									
4 - Demonstration and Validation		0603645A Armored Systems Modernization - Advanced Development									
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		168827	186252	0	0	0	0	0	0	749482	
DB87 Combat Vehicle Survivability		8121	0	0	0	0	0	0	0	30428	
DB88 Crusader Resupply Vehicle - Advanced Development		38338	59386	0	0	0	0	0	0	140833	
DB98 Component Development		9528	0	0	0	0	0	0	0	40732	
D409 Crusader Self-Propelled Howitzer - Advanced Development		112840	126866	0	0	0	0	0	0	537489	

Mission Description and Budget Item Justification: Under PEO Armored Systems Modernization (ASM) management, the Advanced Field Artillery System (AFAS) and the Future Armored Resupply Vehicle (FARV) were PEO ASM systems. The Conventional Systems Committee and the Defense Acquisition Executive concurred in the ASM restructured program and notification was provided to Congress on 1 Jun 92. Subsequently, on 1 Mar 94, PM-AFAS and PM-FARV transitioned to a single (06) Project Manager and management of AFAS/FARV was transferred from PEO ASM to PEO Field Artillery Systems (FAS). On 15 Nov 94, AFAS/FARV was approved by the Defense Acquisition Board to proceed into the Demonstration and Validation phase as a single program. Beginning in FY 95, this program was named Crusader. This program element focuses on efforts associated with the technology demonstration and validation of Crusader (AFAS and FARV) and is correctly placed in Budget Activity 4. Crusader is the Army's next generation indirect fire cannon and artillery resupply system for Force XXI. This system will provide an overmatching fire power capability that will support the force commander's goal of dominating the maneuver battle. Crusader will incorporate advanced technologies to increase accuracy, rate of fire, survivability, mobility and ammunition handling speed, and to decrease crew size. When fielded, Crusader will displace the M109A6 Paladin self-propelled Howitzer and M992 Field Artillery Ammunition Supply Vehicle in rapidly deployable and forward deployed forces. Continuation of Crusader Demonstration and Validation is in PE 0603854A, Project D505.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603645A Armored Systems Modernization -
Advanced Development

PROJECT

DB87

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DB87 Combat Vehicle Survivability	8121	0	0	0	0	0	0	0	30428

A. Mission Description and Budget Item Justification Project DB87 - Combat Vehicle Survivability: This effort evaluated methods of reducing Crusader susceptibility to smart/guided top and horizontal attack threats and characterized methods of reducing system vulnerability to ballistic and non-ballistic threats. Susceptibility reduction efforts consisted of: analytical characterization of top and direct fire engagement timelines (the time required for a threat weapon or smart top attack munitions to detect and engage its target), identification of sensor and countermeasure options and performance criteria; and simulation and field tests verifying the operational performance of selected devices. This work, performed in coordination with TACOM Advanced Land Combat efforts, developed close-in self-protection concepts capable of detecting, tracking, and defeating both direct and indirect fire threats. Crusader vulnerability reduction activities emphasized the following: Development and demonstration of the potential to compartmentalize propellant and 155mm HE projectiles; generation of ballistic shock specifications; definition of interior shielding technologies providing integrated radiation and spill protection for the crew; maturation and demonstration of NBC collective protection technologies; and demonstration of standoff chemical agent detection. This work provided the basis for development of a performance specification supporting Crusader.

FY 1995 Accomplishments:

- 4121 Top attack protection, propellant compartmentation, NBC protection, supplemental ballistic protection, requirements analysis.
- 2694 Support to Crusader Product Development Teams.
- 1306 Container testing, ballistic modeling, vulnerability modeling.
- Total 8121

FY 1996 Planned Program: Program not funded in FY 1996**FY 1997 Planned Program:** Program not funded in FY 1997

Project DB87

Page 2 of 18 Pages

Exhibit R-2 (PE 0603645A)

475

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0603645A Armored Systems Modernization -

DB87

FY 1997FY 1995

8121

8121

FY 1995FY 1995FY 1995FY 1995FY 1995

C. Other Program Funding Summary: None

D. Schedule Profile

FY 1995
2 3

FY 1995
2 3

FY 1995
2 3

FY 1995
2 3

FY 1995
2 3

FY 1995
2 3

Page 3 of 18 Pages

Exhibit R-2 (PE 0603645A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603645A Armored Systems Modernization -
Advanced Development

DB87

A. Project Cost Breakdown

Product Development	FY 1995	FY 1996	FY 1997
	4121		
Support and Management	2694		
Testing and Evaluation	1306		
Total	8121		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Government Method/Type

Performing or Funding

Activity Vehicle

Award or Obligation

Date

Performing Activity

EAC

EAC

Total

Prior to

FY 1995

FY 1996

FY 1997

Budget to

Complete

Total

Program

Product Development Organizations

Support and Management Organizations

Test and Evaluation Organizations

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

Project DB87

Page 4 of 18 Pages

Exhibit R-3 (PE 0603645A)

477

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603645A Armored Systems Modernization - Advanced Development								DB88	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DB88	Crusader Resupply Vehicle - Advanced Development	38338	59386	0	0	0	0	0	0	140833	
<p>A. Mission Description and Budget Item Justification: Project DB88 - Crusader RSV - AD, formerly called Future Armored Resupply Vehicle (FARV): The present 155mm artillery system has a lightly protected resupply vehicle with limited payload/mobility and exposed crews during rearm/resupply operations. Resupply Vehicle (RSV) will increase ammunition payload and will provide automated, rapid transfer of ammunition, propellant and fuel to the Crusader self-propelled howitzer (SPH), formerly called Advanced Field Artillery System (AFAS). The RSV will support the decentralized and continuous operations of the SPH thereby increasing SPH mission effectiveness. Automation and robotics in the RSV will allow crew reduction resulting in life cycle cost benefits over the current system. The RSV will have increased ballistic and non-ballistic survivability features. Mobility improvements features will allow the Crusader system to keep up with the maneuver force. Beginning in FY97 this project merges into a single project along with D409 to form D505 Crusader - AD, PE 063854A, Artillery Systems Advanced Development.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 20198 Initiation of the Requirements and Analysis, Component Maturation (RA/CM). 365 Completion of Martin Marietta, 155mm Integrated propellant Resupply efforts. 17775 Maturation of Critical Resupply Technology in the areas of robotic handling, ammunition upload, identification and continuation of product development team, matrix and core management support efforts for the propellant transfer system. <p>Total 38338</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 48799 Development Phase I/II Contract Efforts. Down select to SP propellant due to affordability and risk concerns. Conduct SFR and commence preliminary design. 6897 Continued Product Development Team support, management of the propellant technology and other management support. 2227 Continued Management Support. 1296 SBIR/STTR. 167 Revised Economic Assumptions not available for execution <p>Total 59386</p> <p>FY 1997 Planned Program: Program not funded in FY 1997</p>											

Project DB88

Page 5 of 18 Pages

Exhibit R-2 (PE 0603645A)

478

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603645A Armored Systems Modernization -
Advanced Development

DB88

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

38338

FY 1996

71054

FY 1997

59987

-601

59386

Change Summary Explanation:

Funding: Adjustments in FY 96 are the result of Revised Economic Assumptions (-601).

C. Other Program Funding Summary

RDTE, A Budget Activity 5

PE 0604854A, Project D503 Crusader - ED

RDTE, A Budget Activity 5

PE 0604854A, Project D2KT Crusader

Operational Test

RDTE, A Budget Activity 4

PE 0603854A, Project D505 Crusader - AD

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

To Comp Total Cost

804200

1614644

28600

30324

0

919238

D. Schedule Profile

FY 1995

1

FY 1996

X*

FY 1997

X*

FY 1998

X*

FY 1999

X*

FY 2000

X*

FY 2001

X*

Award Contract Definition Phase of

Development Phases I & II Contract

Award Requirements Analysis and

Maturation Phase of Development

Phases I/II Contract

Milestone I Review

Award Development Phases I/II Contract

X*

Project DB88

Page 6 of 18 Pages

Exhibit R-2 (PE 0603645A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996					
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT					
4 - Demonstration and Validation	0603645A Armored Systems Modernization - Advanced Development		DB88					
D. <u>Schedule Profile</u>	FY 1995 FY 1996 FY 1997							
	1	2	3	4	1	2	3	4
Conduct SFR and begin preliminary design						X		
* Milestone completed								

Project DB88

Page 7 of 18 Pages

Exhibit R-2 (PE 0603645A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603645A Armored Systems Modernization -
Advanced Development

DB88

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Development RA/CM Phase I & II Contract	20198	48799	
Contractor Engineering Support	1862	750	
Government Engineering Support	14784	6147	
Program Management Support	1494	2227	
Revised Economic Assumptions		1463	
Total	38338	59386	

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
United Defense, Limited Partnership	SS/CPIF	Sep 94	TBD	TBD	2500	20198	48799		0	71497
Martin Marietta, Burlington, VT	SS/CPFF	Mar 93	5565	5565	5200	365			0	5565
ARDEC, Picatinny Arsenal, NJ	PO				1000	1000	1000		0	2000
Support and Management Organizations										
Dept of Energy - Oak Ridge Nat'l Labs, TN	MIPR				12128	5159			0	17287
PM-Crusader, Picatinny Arsenal, NJ					1357	1494	2227		0	5078
ARDEC, Picatinny Arsenal, NJ	PO				11514	6124	3617		0	21255

Project DB88

Page 8 of 18 Pages

Exhibit R-3 (PE 0603645A)

481

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT
BUDGET ACTIVITY					PE NUMBER AND TITLE							
4 - Demonstration and Validation					0603645A Armored Systems Modernization - Advanced Development					DB88		
Contractor or Government	Contract Method/Type or Funding	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program		
Performing Activity	Vehicle		EAC	EAC	3102	2501	1530		0	7133		
Other Field	PO											
Activities												
Various other contracts					7308	1497	750		0	9555		
Test and Evaluation Organizations												
TECOM, Yuma PO												
Proving Grds, AZ												
Government Furnished Property: None												
Subtotal Product Development												
Subtotal Support and Management												
Subtotal Test and Evaluation												
SBIR/STTR												
Revised Economic Assumptions												
Total Project												
					7700	21563	49799		0	79062		
					35409	16775	8124		0	60308		
					0	0	0		0	0		
							1296		0	1296		
					43109	38338	167		0	167		
							59386		0	140833		

Project DB88

Page 9 of 18 Pages

Exhibit R-3 (PE 0603645A)

Project DB88

Page 9 of 18 Pages

Exhibit R-3 (PE 0603645A)

482

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603645A Armored Systems Modernization -

DB98

Advanced Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DB98 Component Development	9528	0	0	0	0	0	0	0	40732

A. Mission Description and Budget Item Justification: Project DB98 - Component Development: This project developed and matured certain mobility technologies specifically required for the Crusader, to include advanced torsion bar suspension. Project completed in FY 1995.

FY 1995 Accomplishments:

- 7289 Product Development
- 2239 Support and Management
- Total 9528

FY 1996 Planned Program: Program not funded in FY 1996

FY 1997 Planned Program: Program not funded in FY 1997

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995
9528

FY 1996

FY 1997

9528

C. Other Program Funding Summary: None

Project DB98

Page 10 of 18 Pages

Exhibit R-2 (PE 0603645A)

483

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
4 - Demonstration and Validation	0603645A Armored Systems Modernization - Advanced Development	DB98	
<u>D. Schedule Profile</u>			
ATR Testing			
Milestone I Decision			
* Milestone completed.			

	FY 1995	FY 1996	FY 1997
1	2	2	2
X*	3	3	3
	4	4	4

Project DB98

Page 11 of 18 Pages

Exhibit R-2 (PE 0603645A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603645A Armored Systems Modernization -
Advanced Development

DB98

A. Project Cost Breakdown

Product Development	FY 1995	FY 1996	FY 1997
	7289		
Support to Management	2239		
Test & Evaluation	0		
Total	9528		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contract

Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
--------------------------------------	--------------------------------------	--------------------------------	-------------------------------	--------------------------	------------------------------	---------	---------	---------	-----------------------	------------------

Product Development Organizations

	29401	7289	0	36690
	1630	2239	0	3869
	173		0	173

Support and Management Organizations

Test and Evaluation Organizations

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

29401	7289	0	36690
1630	2239	0	3869
173	0	0	173
31204	9528	0	40732

Project DB98

Page 12 of 18 Pages

Exhibit R-3 (PE 0603645A)

485

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603645A Armored Systems Modernization -
Advanced Development

D409

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D409 Crusader Self-Propelled Howitzer - Advanced Development	112840	126866	0	0	0	0	0	0	537489

A. Mission Description and Budget Item Justification: Project D409 - Crusader SPH - AD, formerly called Advanced Field Artillery System (AFAS): Crusader self-propelled howitzer (SPH) is the Army's next generation 155mm self-propelled howitzer system providing high payoff technology capabilities in support of the maneuver force. This project develops AFAS Advanced Technology Demonstrator (ATD); matures the alternative gun technology; matures packaging and formulation of the advanced propellant; matures the fire control/artillery componentry; and, provides funding for the Development Phases I/II efforts. SPH requirements include leap-ahead capabilities in range, rate-of-fire, sustained fire, time-on-target, accuracy, responsiveness, automated ammunition handling/resupply, reduced crew size and survivability. Beginning in FY97 this project merges into a single project along with DB88 to form D505 Crusader - AD, PE 0603854A, Artillery Systems Advanced Development.

FY 1995 Accomplishments:

- 105076 Product Development - Awarded Requirements Analysis and Maturation portion of the Development Phases I/II contract, as well as the balance of the Development Phase I contract efforts. Continued efforts in support of the Advanced Technology Demonstration and technical maturation of critical components.
- 6330 Support and Management - Continued project management efforts, to include scientific and engineering management services. Completed both the Independent Government Cost Estimate (IGCE) and the Technical Evaluation for the Development Phases I/II contract.
- 1434 Test and Evaluation - Completed ATD integration. Continued Armament/Mount reliability testing and Insensitive munitions testing.
- Total 112840

FY 1996 Planned Program:

- 109897 Product Development - Continue developmental efforts under the Development Phases I/II contract. Downselect to SP propellant due to affordability and risk concerns. Conduct SFR and commence preliminary design.
- 9471 Support and Management - Continue project management efforts, to include scientific and engineering management services.
- 4356 Test and Evaluation - Begin contractor DT&E under the Development Phases I/II contract.
- 2786 SBIR/STTR
- 356 Revised Economic Assumptions not available for execution.
- Total 126866

FY 1997 Planned Program: Program not funded in FY 1997.

Project D409

Page 13 of 18 Pages

Exhibit R-2 (PE 0603645A)

486

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603645A Armored Systems Modernization -
Advanced Development

D409

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

112840

FY 1996

130459

FY 1997

128149

-1283

126866

Change Summary Explanation:

Funding: FY 96 Adjustments are the result of Revised Economic Assumptions (-1283).

C. Other Program Funding Summary

RDTE, A Budget Activity 5

PE 0604854A, Project D503 Crusader - ED

RDTE, A Budget Activity 5

PE 0604854A, Project D2KT Crusader

Operational Test

RDTE, A Budget Activity 4

PE 0603854A, Project D505 Crusader - AD

RDTE, A Budget Activity 5

PE 0604645A, Project D175 MOFA

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

To

Compl

Total

Cost

804200

1614644

28600

30324

0

919238

0

40836

Project D409

Page 14 of 18 Pages

Exhibit R-2 (PE 0603645A)

487

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603645A Armored Systems Modernization -

PROJECT

D409

D. <u>Schedule Profile</u>		FY 1995		FY 1996		FY 1997	
Award Contract Definition Phase of Development Phases I/II Contract	1	2	3	1	2	3	4
Award Requirements Analysis and Maturation Phase of Development Phases I/II Contract	X*			4	1	4	1
Milestone I Review	X*						
Award Development Phases I/II Contract				X*			
Conduct SFR and begin preliminary design							X

*** Milestone completed.**

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY		PE NUMBER AND TITLE			DATE		PROJECT		
4 - Demonstration and Validation		0603645A Armored Systems Modernization - Advanced Development			March 1996		D409		
A. Project Cost Breakdown									
Product Development		FY 1995	FY 1996	FY 1997					
Support and Management		105076	109897						
Test and Evaluation		6330	9471						
Revised Economic Assumptions		1434	4356						
Total		112840	3142	126866					
B. Budget Acquisition History and Planning Information									
Performing Organizations									
Contractor or Government	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete
Activity									Total Program
Product Development Organizations									
United Defense, Minneapolis, MN	Comp/CPIF	May 91	76173	76173					0 76173
Martin Marietta, Pittsfield, MA	SS/CPIF/CPF F	Jan 92	TBD	100799	97299	3500			0 100799
United Defense, Minneapolis, MN	SS/CPIF	Sep 94	TBD	TBD	5000	78997	96632		0 180629
AMCCOM, Picatinny Arsenal, NJ, Watervliet Arsenal, NY, Rock Island Arsenal, IL					49127	13915	7527		0 70569
ARL, Aberdeen Proving Grd, MD					9304	2495	1852		0 13651
Watertown, MA	SS/FFP	Sep 93	1988	1988	1988				0 1988
Olin, Charleston, TN									

Project D409

Page 16 of 18 Pages

Exhibit R-3 (PE 0603645A)

489

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	March 1996	PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE				D409	
4 - Demonstration and Validation		0603645A Armored Systems Modernization - Advanced Development					
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity *	Project Office EAC	Total Prior to FY 1995	Budget to Complete FY 1997	Total Program
Grumman, Beth Page, NY	Comp/CPFF	Nov 93	4275	4275	4275	0	4275
Martin Marietta, Pittsfield, MA	Comp/CPFF	Jan 93	4204	4204	4184	0	4204
LB&M, Lawton, OK	Comp/CPFF	Feb 93	1806	1806	1806	0	1806
Various other OGA's and Contractors					17372	3886	27407
Support and Management Organizations							
PM Crusader, Picatinny Arsenal, NJ					6901	2471	13053
AMCCOM, Picatinny Arsenal, NJ					9513	3659	18612
TRW, Redondo Beach, CA					3503		3503
Various OGA's and Contractors					1412	200	1962
Test and Evaluation Organizations							
TECOM, Yuma Proving Grds, AZ, CSTA, Aberdeen Proving Grds, MD					3451	1434	9241
Morton Thiokol, Elkton, MD	SS/FPI	May 93	3307	3307	3307	0	3307
Olin, Charleston, TN	SS/FPI	May 93	3168	3168	3168	0	3168
Project D409				Page 17 of 18 Pages		Exhibit R-3 (PE 0603645A)	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603645A Armored Systems Modernization -

D409

Advanced Development

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
TBD-Ammo Purchase		TBD	TBD	TBD	N/A					
Government Furnished Property: None										
Subtotal Product Development					266528	105076	109897		0	481501
Subtotal Support and Management					21329	6330	9471		0	37130
Subtotal Test and Evaluation					9926	1434	4356		0	15716
SBIR/STTR							2786		0	2786
Revised Economic Assumptions							356		0	356
Total Project					297783	112840	126866		0	537489

Project D409

Page 18 of 18 Pages

Exhibit R-3 (PE 0603645A)

491

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603649A Engineering Modification Equipment - Advanced Development								DG24	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DG24	M1 Breacher	15414	9839	0	0	0	0	0	0	68706	
<p>A. Mission Description and Budget Item Justification: The M1 Breacher will be developed around the M1 Abrams tank chassis and will integrate a versatile/survivable full-width mine clearing blade with reactive depth control, a power driven excavating arm, and an armored commander's control station. The M1 Breacher will provide the Combat Engineer with significantly improved mission effectiveness and crew/vehicle survivability while clearing minefields and removing complex natural and man-made obstacles at the forward edge of the battlefield. The M1 Breacher will be capable of moving with, and will be as survivable as, the force it is supporting. This program element/project is correctly placed in Budget Activity 4, focusing on efforts associated with advanced technology development to include demonstration and validation in the areas of mine clearing blade reactive depth control, power bus, vetronics, survivability, and hydraulics. The project transitioned to PE 0604649A, DG25, for the Engineering and Manufacturing Development (EMD) phase of the acquisition life cycle in FY 1996.</p> <p>Acquisition Strategy: The M1 Breacher, built around the M1 Abrams Tank chassis, utilizes a streamlined acquisition strategy. Research and development efforts have leveraged the accomplishments of the Combat Mobility Vehicle Advanced Technology Transition Demonstrator (CMV-ATTD) contract. Design modifications have been written into the Advanced Development contract for the powertrain and other chassis components/systems necessary to insure that the Breacher will meet the mission profile required by the Operational Requirements Document. Through the production buy the vehicle will be sole sourced to United Defense Limited Partnership (UDLP), Ground Systems Division, York, PA.</p>											
<p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 7554 Completed Prototype Fabrication • 789 Conducted Contractor Shakedown Testing and Training • 2593 Completed Preliminary Draft Equipment Publications and Integrated Logistics Support Initiatives • 1210 Began Government Development Testing • 2179 Provided Government/Contractor Program Management Support • 1089 Began Preparation of Statement of Work (SOW), Purchase Description (PD) and Other Contract Documents in Support of Next Contract Total 15414 											

Project DG24

Page 1 of 5 Pages

Exhibit R-2 (PE 0603649A)

492

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
DG24

4 - Demonstration and Validation

0603649A Engineering Modification Equipment -
Advanced Development

FY 1996 Planned Program:

- 1452 Complete Government Development Testing and Conduct Early User Testing
- 6273 Refine Design, Validate Logistics Functions, and Apply Engineering Changes
- 1867 Provide Government/Contractor Program Management Support
- 219 SBIR/STTR
- 28 Revised Economic Assumption not available for execution
- Total 9839

FY 1997 Planned Program: Program not funded in FY 1997

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)			
Appropriated Amount (FY 1995)	15726	5615	0
Adjustment to FY 1995	15414		
Appropriated Amount (FY 1996)		9938	
Adjustment to FY 1996		-99	
Adjustments to Budget Year (FY 1997) since FY 1996			
President's Budget	15414	9839	0
Current President's Budget Submit			

Change Summary Explanation:

Funding: FY 1996 reflects a reduction of \$99 for Revised Economic Assumptions.

Schedule: Completion of testing is currently scheduled for 3Q96. Contract completion is currently scheduled for end of 3Q96.

Technical: Breacher contractor is working on design issues to insure a "go" decision at Milestone II to include vehicle weight reduction, Test Incident Report (TIR) corrective actions, update of vetronics architecture, Automotive Fire Extinguisher System (AFES) agent replacement, crew station layout and others.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
RDTE, A Budget Activity 5									93991
PE 0604649A, Project DG25, M1 Breacher Dev		10664	33337	20032	8530	14451	6977		93991
PA, WTCV, GZ3200, Breacher MOD				25507	76979	92793	97940	Cont'd	Cont'd
PA, WTCV, GEO175, Breacher Spares					1150	2258	2077	Cont'd	Cont'd

Project DG24

Page 2 of 5 Pages

Exhibit R-2 (PE 0603649A)

493

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

[illegible]

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603649A Engineering Modification Equipment -
Advanced Development

DG24

A. Project Cost Breakdown

Development Engineering
Logistics Support
System Test & Evaluation
System Project Management
SBIR/STTR and Revised Economic Assumptions not available
for execution
Total

FY 1995

7554

FY 1996

4677

FY 1997

1596

1999

1452

1867

247

9839

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or
Government
Performing
Activity

Method/Type
or Funding
Vehicle

Award or
Obligation
Date

Performing
Activity
EAC

Project
Office
EAC

Total
Prior to
FY 1995

FY 1995
FY 1996
FY 1997

Budget to
Complete

Total
Program

Product Development Organizations
United Defense,
York, PA

9/92 (K
Mod)

56915

56915

38785

11163

6967

56915

Other Contracts
Various

Various

247

398

322

967

Support and Management Organizations

TACOM

3091

1810

1152

6053

250

1410

Warren, MI

ANAD

125

125

710

515

185

230

Anniston, AL

Other Gov't

Agencies

Contract Support

to Milestone Rev

230

230

230

Project DG24

Page 4 of 5 Pages

Exhibit R-3 (PE 0603649A)

495

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE						DG24
4 - Demonstration and Validation		0603649A Engineering Modification Equipment - Advanced Development						
Contractor or Government	Contract Method/Type or Funding	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997
Performing Activity	Vehicle	Date	EAC	EAC			247	
SBIR/STTR and Revised Economic Assumptions								
Test and Evaluation Organizations					336	520	285	
TECOM								
APG, MD								1141
Government Furnished Property		Contract Method/Type or Funding	Award or Obligation Date	Delivery Date	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997
Item Description	Vehicle	Date						
Product Development Property								
TACOM								
Warren, MI	Requisitions	Various	Various		159			
Support and Management Property: None								
Test and Evaluation Property								
TACOM	Requisitions	Various	Various			653	681	
Warren, MI								
Subtotal Product Development					39191	11561	7289	
Subtotal Support and Management					3926	2680	1584	
Subtotal Test and Evaluation					336	1173	966	
Total Project					43453	15414	9839	
								58041
								8190
								2475
								68706
Project DG24		Page 5 of 5 Pages						Exhibit R-3 (PE 0603649A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603653A Advanced Tank Armament System

DB99

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DB99 Advanced Tank Armament System	4773	9683	9639	9686	9693	9552	9475	Continuing	Continuing

A. Mission Description and Budget Item Justification Our success in Desert Storm was due in large part to the superiority of our armament systems over those of the Iraqi Army. We were able to see, hit and kill the enemy long before they were even aware of our presence. The goal of the Advanced Tank Armament System (ATAS) program is to maintain our superiority over increasingly more capable future enemy tanks. The ATAS program is one of the principal programs supporting tank lethality improvements. The program is developing and demonstrating a number of key gun and fire control technologies which offer significant payoffs in lethality for the current tank fleet as well as the next upgrade to the M1A2 Abrams tank.

The ATAS Program has two main phases. Phase I develops and demonstrates in FY 97 autotarget tracking technology that is applicable to the current M1 Abrams series of tanks. Phase I is a requirements oriented, Combat Developer (User) directed program that increases tank lethality by allowing the tank crew to quickly kill enemy battlefield targets. Phase I technology, when applied to tank training devices, will reduce tank crew training costs by reducing the amount of training necessary for new Gunners to perform proficiently. Phase II develops and matures a highly lethal tank main gun, the XM291, that can kill advanced enemy tanks at long range. Phase II also develops a compact automatic ammunition loader as well as advanced fire control system components consisting of a Continuous Muzzle Reference System, an Equilibrated Gun Turret Drive System, an advanced tank main gun stabilization system, improved ballistics, a target state estimating system and an embedded training system. Together these components with the XM291 gun allow the tank crew to engage enemy targets at increased ranges, faster and more accurately. These components will be tested on the M1A2 SEP tank for a technology demonstration in FY 00.

The ATAS program is appropriately in Budget Activity 4 - Demonstration and Validation. The activities conducted in the ATAS Program fall under the head of Demonstration and Validation as defined in Part 3, DoDI.5000.2. The ATAS program is conducting prototyping, testing and early operational assessment of critical tank armament systems, subsystems, and components; identifying cost drivers and alternatives using modeling and simulation, and working with the User representative to establish performance objectives and identify cost-schedule-performance trade-offs.

Acquisition Strategy: This program is an Acquisition Category III (ACAT III) Program with the Program Executive Officer (PEO) servicing as the milestone decision authority. The technologies developed and integrated may flow into the next major upgrade or Engineering Change Proposal (ECP) to the current Abrams tank. Several contractors and government agencies are used to develop or integrate existing technologies. Modified Integrated Product Teams (IPTs), not co-located, are composed of various Army agencies and contractors.

FY 1995 Accomplishments:

- 1900 Gun Technology - Designed and fabricated new gun tube and support structure.
- 2873 Phase II - Completed Brassboard Demonstration and Brassboard Systems Integration Laboratory.
- Total 4773

Project DB99

Page 1 of 5 Pages

Exhibit R-2 (PE 0603653A)

497

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT																																				
BUDGET ACTIVITY	PE NUMBER AND TITLE	March 1996	DB99																																				
4 - Demonstration and Validation		0603653A Advanced Tank Armament System																																					
<p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 1600 Gun Technology - continue gun maturation program 900 Phase I - design/fabricate/integrate autotarget tracker hardware/software for M1A2 tank 6982 Phase II - procure objective fire control hardware, begin software integration, initiate turret integration study 174 SBIR/STTR. 27 Revised Economic assumption - not available for execution <p>Total 9683</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 1650 Gun Technology - continue gun maturation program 600 Phase I - complete autotarget tracker demonstration 7389 Phase II - complete fire control component hardware/software integration, initiate turret integration <p>Total 9639</p> <p>B. Project Change Summary</p> <table border="0"> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td>10075</td> <td>10002</td> <td>9979</td> </tr> <tr> <td>Appropriated Value (FY 1995)</td> <td>4847</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to FY 1995 Appropriated Value</td> <td>-74</td> <td></td> <td></td> </tr> <tr> <td>Appropriated Amount (FY 1996)</td> <td></td> <td>9781</td> <td></td> </tr> <tr> <td>Adjustments to FY 1996</td> <td></td> <td>-98</td> <td>-340</td> </tr> <tr> <td>Adjustments to Budget Year (FY 1997) since FY 1996</td> <td></td> <td></td> <td></td> </tr> <tr> <td>President's Budget</td> <td></td> <td>9683</td> <td>9639</td> </tr> <tr> <td>Current President's Budget</td> <td>4773</td> <td></td> <td></td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: The adjustments in FY 96 and in FY 97 are due primarily to inflation adjustments. Schedule: Alignment based on a revised two phase program that supports M1A2 Systems Enhancement Package.</p> <p>C. Other Program Funding Summary: N/A</p>					FY 1995	FY 1996	FY 1997	Previous President's Budget	10075	10002	9979	Appropriated Value (FY 1995)	4847			Adjustments to FY 1995 Appropriated Value	-74			Appropriated Amount (FY 1996)		9781		Adjustments to FY 1996		-98	-340	Adjustments to Budget Year (FY 1997) since FY 1996				President's Budget		9683	9639	Current President's Budget	4773		
	FY 1995	FY 1996	FY 1997																																				
Previous President's Budget	10075	10002	9979																																				
Appropriated Value (FY 1995)	4847																																						
Adjustments to FY 1995 Appropriated Value	-74																																						
Appropriated Amount (FY 1996)		9781																																					
Adjustments to FY 1996		-98	-340																																				
Adjustments to Budget Year (FY 1997) since FY 1996																																							
President's Budget		9683	9639																																				
Current President's Budget	4773																																						

Project DB99

Page 2 of 5 Pages

Exhibit R-2 (PE 0603653A)

498

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603653A Advanced Tank Armament System

DB99

D. Schedule Profile

	FY 1995		FY 1996		FY 1997	
	1	2	3	4	1	2
Complete design /fabrication of improved gun support structure (Core Technology)						
Complete the improved gun stabilization test (Core Technology)						
Complete Phase II Brassboard Demonstration						
Complete Phase II Brassboard Systems Integration Lab						
Complete hardware/software integration for Autotracker Demo (Phase I)						
Complete Autotracker Demonstration (Phase I)						
Procure Objective Hardware						
Integrate Gun Maturation						
Initiate Phase II turret integration only						
Begin integration of Phase II software with hardware						
Complete Phase II fire control hardware/software integration						
Initiate Turret integration						
Continue Gun Maturation						

Project DB99

Page 3 of 5 Pages

Exhibit R-2 (PE 0603653A)

499

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				
4 - Demonstration and Validation		0603653A Advanced Tank Armament System				DB99
A. Project Cost Breakdown						
Primary Hardware Development/Contractor		FY 1995	FY 1996	FY 1997		
		2473	7282	6639		
Primary Hardware Development/Government		1600	700	2000		
Quality Assurance		100	300	300		
Developmental Test & Evaluation		100	600	100		
Program Management (PM-TMAS/ARDEC)		500	600	600		
SBIR/STTR			174			
Revised Economic Assumption not available for execution			27			
Total		4773	9683	9639		
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or Government	Contract Method/Type	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	
Performing Activity	Vehicle			EAC	FY 1995	FY 1996
Product Development Organizations						
Texas Instruments	C-CPFF	Sep 90	TBD	49600	*	2433
Benet Laboratories	OGA				*	1400
Hughes Aircraft	SS-CPFF	Jan 93	TBD	59000	*	40
ARDEC	OGA					200
* Under Different PE (0604630A)						
Support and Management						
PM-TMAS/ARDEC					600	900
Test and Evaluation					100	600
CSTA						
SBIR/STTR						174
Rev Eco Assump - not avail for exec						27
Total					4773	9683
					9639	
						Cont'd
Project DB99					Exhibit R-3 (PE 0603653A)	

Page 4 of 5 Pages

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603653A Advanced Tank Armament System

DB99

Government Furnished Property: Not Applicable

	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program Cont'd Cont'd Cont'd
Subtotal Product Development		4073	7982	8800	Cont'd	Cont'd
Subtotal Support and Management		600	900	739	Cont'd	Cont'd
Subtotal Test and Evaluation		100	600	100	Cont'd	Cont'd
SBIR/STTR			174			
Revised Economic Assumption - not available for execution			27			
Total Project		4773	9683	9639	Cont'd	Cont'd

Project DB99

Page 5 of 5 Pages

Exhibit R-3 (PE 0603653A)

501

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY										PE NUMBER AND TITLE	
4 - Demonstration and Validation										0603713A Army Data Distribution System	
COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost		
Total Program Element (PE) Cost	5279	6476	23822	22894	10907	5482	0	0	352832		
D370 JTIDS/EPLRS (Formerly Known as PJH-PLRS/JTIDS Hybrid)	5279	5798	20169	22884	10907	5482	0	0	348491		
D2QT EPLRS/JTIDS Operational Test	0	678	3653	10	0	0	0	0	4341		

Mission Description and Budget Item Justification: The Army Data Distribution System (ADDS), which consists of the Enhanced Position Location Reporting System (EPLRS), the Joint Tactical Information Distribution System (JTIDS), and the Near Term Digital Radio (NTDR) provides support to the Army's air defense, fire support, maneuver control, intelligence and combat service support automated system. Project D370 is capable of "digitizing data messages" that must be transmitted on the battlefield. It is capable of providing multi-functions, data communications, unit locations and unit identification. The ADDS network automatically utilizes manpack, surface vehicle and airborne vehicle user units to achieve range extension. It has been designated specifically to meet the data communications requirements of emerging tactical automated data processing and sensor based systems. The ADDS will provide reliable, real-time, secure, jam-resistant data communications and position location capabilities to the soldier and his unit commander. These projects focus on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of Army Data Distribution and are correctly placed in Budget Activity 4.

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY		PE NUMBER AND TITLE							DATE	PROJECT
4 - Demonstration and Validation		0603713A Army Data Distribution System							March 1996	D370
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D370	JTIDS/EPLRS (Formerly Known as PJH-PLRS/JTIDS Hybrid)	5279	5798	20169	22884	10907	5482	0	0	348491

A. Mission Description and Budget Item Justification : This project provides data distribution support to the Army's air defense, fire support, maneuver control, intelligence and combat service support automated systems, and is capable of "digitizing data messages" that must be transmitted on the battlefield. The project will provide reliable, real-time, secure, jam-resistant data communications and position location capabilities to the soldier and his unit commander.

Acquisition Strategy: The EPLRS System Improvement Plan (SIP) is designed to significantly reduce the cost of the radio. A sole source contract was awarded to Hughes Aircraft in September 1994. The Near Term Digital Radio (NTDR) program will follow a non-development item (NDI) approach with an RDTE contract awarded January 1996. An option on this contract can be exercised up to 30 months after Jan 96. Through technology insertion, the NTDR is envisioned to evolve into the Future Digital Radio. The Multifunctional Information Distribution System (MIDS) program is a Navy managed joint services development program currently viewed as an eventual low cost replacement for parts of the JTIDS family of high speed data terminals.

FY 1995 Accomplishments:

- 2554 Continued JTIDS Development
- 2425 Continued Operational Test (OT) of EPLRS downsized NCS-E
- 300 JTIDS LCSE
- Total 5279

FY 1996 Planned Program:

- 1289 JTIDS Software Development Completion
- 1745 NCS (D) Software Development Completion
- 1890 NTDR Program Hardware and Software development
- 753 Program Management/Test Activities
- 104 SBIR /STTR
- 17 Revised Economic Assumption not available for execution.
- Total 5798

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0603713A Army Data Distribution System

D370

•	16399	Continue NTDR Program
•	1570	Program Management Activities (NTDR & MIDS)
•	500	MIDS Contract Development/Engineering Support
•	1050	NTDR Testing
•	650	EPLRS (NCS Downsized)
•	20169	Total

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current President's Budget Submit

Change Summary Explanation:

Funding: FY 95 Below threshold reprogramming (-24).

FY 96 (-58) the portion of this program that has been proposed for rescission.

FY 97 (+14163) increase is due to adjustment to NTDR Program.

Schedule: Not Applicable

Technical: Not Applicable

OPA 2, BUI400

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost cont
9490	43563	47987	59777	30408	43686	17264		

Page 3 of 9 Pages

Exhibit R-2 (PE 0603713A)

504

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603713A Army Data Distribution System

D370

D. Schedule Profile

	FY 1995	FY 1996	FY 1997
1	2	2	2
X*	3	3	3
	4	4	4

Complete CL2M LUT

LRIP Decision for CL2M Terminals

NTDR Award

Initiate JTIDS CL2M OT

Complete NCS-E(D) OT

X*

X

X

* Milestone has been completed.

Project D370

Page 4 of 9 Pages

Exhibit R-2 (PE 0603713A)

505

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT
BUDGET ACTIVITY					PE NUMBER AND TITLE							
4 - Demonstration and Validation					0603713A Army Data Distribution System							D370
A. Project Cost Breakdown					FY 1995	FY 1996	FY 1997					
Contractor Engineering Support					3382	4924	17549					
Program Management Support					1897	729	1570					
Miscellaneous (Near Term Data Radio)					0	145	1050					
Total					5279	5798	20169					
B. Budget Acquisition History and Planning Information												
Performing Organizations												
Contractor or Government	Contract Method/Type	Award or Obligation	Performing Activity	Project Office	Total Prior to	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program		
Activity	Vehicle	Date	EAC	EAC	FY 1995	FY 1996	FY 1997					
Product Development Organizations												
Hughes Aircraft Fullerton , CA	SS/CPFF	SEP 92	183364	192110	192110	215	0	0	0	192325		
Hughes Aircraft Fullerton , CA	SS/CPIF	SEP 94	17988	17988	3100	113	0	0	0	3213		
GEC-Marconi Little Falls, NJ	SS/CPIF	NOV 93	21440	21440	21440	0	0	0	0	21440		
TOAD Tobyhanna, PA	MIPR	JUN 92	25600	25600	25600	0	0	0	0	25600		
UNISYS Corp St. Paul, MN	MIPR	MAR 94	3833	3833	3833	500	0	0	0	4333		
UNISYS Corp St. Paul, MN	MIPR	MAY 95	1424	1424	1424	1099	0	0	0	2523		
Misc	MIPR	TBD	770	770	0	1455	1429	500	4400	7784		
Ventronix Corp, Eatontown, NJ	MIPR	APR 96	770	770	0	0	420	350	0	770		
Loral Corp, Eagen, MN	MIPR	FEB 96	1485	1485	0	0	1185	300	0	1485		
ITT Ft Wayne	C/CPIF	JAN 96	33147	33147	0	0	1890	15399	15585	32874		
TBD	TBD	TBD	2150	2150	0	0	0	1000	1150	2150		
Project D370											Exhibit R-3 (PE 0603713A)	
Page 5 of 9 Pages												

Page 5 of 9 Pages

506

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	March 1996	PROJECT		
BUDGET ACTIVITY		PE NUMBER AND TITLE								
4 - Demonstration and Validation		0603713A Army Data Distribution System						D370		
Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Support and Management Organizations										
Misc	MIPR				10916	732	0	0	0	11648
Misc	MIPR	DEC 95	65	65	0	0	65	0	0	65
Misc	MIPR	MAR 96	25	25	0	0	25	0	0	25
Misc	MIPR	Various				1165	639	1570	1900	5274
Test and Evaluation Organizations										
TEXCOM/EPG	MIPR	MAY 94	19539	19539	19539	0	0	0	0	19539
EPG	MIPR	MAR 96	50	50	0	0	50	0	0	50
TBD	MIPR	MAY 96	13102	13102	0	0	95	1050	11957	13102
TBD	MIPR	TBD							4291	4291
Government Furnished Property N/A										
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project										
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project										
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project										

Project D370

Page 6 of 9 Pages

Exhibit R-3 (PE 0603713A)

Project D370

Page 6 of 9 Pages

Exhibit R-3 (PE 0603713A)

507

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603713A Army Data Distribution System								D2QT	
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D2QT	EPLRS/JTIDS Operational Test	0	678	3653	10	0	0	0	0	4341	
<p>A. Mission Description and Budget Item Justification: This project finances the direct costs of planning and conducting operational testing and evaluation of the EPLRS/JTIDS by the Operational Test and Evaluation Command (OPTEC). JTIDS is an Acquisition Category (ACAT) I system with an Initial Operational Test and Evaluation (IOT&E) beginning in 1 QTR FY 97. OPTEC provides Army leadership with an independent test and evaluation of effectiveness and suitability of the system. Project D2QT is restructured from within this Program Element (PE 0603713A) and is not a new start.</p> <p>FY 1995 Accomplishments: Not Applicable</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 498 JTIDS OT Planning • 150 JTIDS OT Evaluation Planning • 14 OT Unit (Test Players) Support • 15 SBIR/STTR • 1 Revised economic assumptions, not available for execution Total 678 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 3092 Conduct JTIDS OT • 341 JTIDS OT Evaluation • 220 OT Unit (Test Players) Support Total 3653 											

Project D2QT

Page 7 of 9 Pages

Exhibit R-2 (PE 0603713A)

508

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603713A Army Data Distribution System

D2QT

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current President's Budget Submit

FY 1995

0

FY 1996

697

FY 1997

3781

685

-7

-128

3653

Change Summary Explanation:

Funding: FY 96 (-7) the portion of this program that has been proposed for rescission.

FY 97 (-128) decrement due to revised inflation rates

C. Other Program Funding Summary: N/A

D. Schedule Profile

Conduct JTIDS OT

FY 1995
1 2 3

4

FY 1996
1 2 3

4

FY 1997
1 2 3

4

X

Project D2QT

Page 8 of 9 Pages

Exhibit R-2 (PE 0603713A)

509

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			D2QT		
4 - Demonstration and Validation		0603713A Army Data Distribution System			D2QT		
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997			
Operational Test and Evaluation		0	678	3653			
Total			678	3653			
B. Budget Acquisition History and Planning Information							
Performing Organizations							
Contractor or	Contract						
Government	Method/Type						
Performing	or Funding						
Activity	Vehicle						
Product Development Organizations : None							
Support and Management Organizations: None							
Test and Evaluation Organizations:							
OPTEC, FT BLISS	MIPR	3/31/96	4488	4488	0	678	4341
Government Furnished Property: None							
Subtotal Product Development							
Subtotal Support and Management							
Subtotal Test and Evaluation							
Total Project							
						</	

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603730A Tactical Surveillance System -
Advanced Development (TIARA)

PROJECT

D560

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D560 Tactical Surveillance System - Adv Dev	11481	0	0	0	0	0	0	0	312899

A. Mission Description and Budget Item Justification: This project supports advanced development work directed at meeting the deep intelligence and targeting needs of tactical commanders, as stated in Field Manual 100-5 and under Airland Battle tactics, to fight out-numbered and win. Specific tactical imagery exploitation advanced development efforts are under the auspices of Army's Tactical Exploitation of National Capabilities (TENCAP) program and include advanced development engineering of Tactical Exploitation System (TES), advanced communication technologies and processing requirements for new National sensors, prototyping efforts for Hybrid Optical Automatic Target Recognition (HOATR) image processing. HOATR is being developed to meet the need to rapidly exploit an exponentially increasing volume of imagery while decreasing system size and cost, as well as lowering manning requirements. HOATR is directly applicable to the Enhanced Tactical Radar Correlator (ETRA) and the Modernized Imagery Exploitation Systems (MIES). The Army's emerging TES will incorporate the standards and protocols dictated by the Common Imagery Ground Surface System (CIGSS) program. TES, as a system, brings all of the existing and emerging Army TENCAP capabilities (EPDS, MIES, and ETRAC) into an integrated common baseline; downsized, modular and scaleable to meet a wide range of contingency requirements. TENCAP Common Baseline (which incorporates HOATR and Secondary Imagery Dissemination (SID)) addresses common subsystems, planned improvements, key activities and ongoing planned initiatives determined to have potential application to multiple TENCAP systems (including MIES and ETRAC that are funded under the Defense Airborne Reconnaissance Program (DARP) (PE 0305154D)). In FY 1994, this Program Element also provided advanced development efforts to the MIES and the ETRAC, and program support to the Joint Services Imagery Processing System (JSIPS). In FY 1995, development efforts for MIES, ETRAC and JSIPS program support were moved to PE 0305154D, (DARP). In a parallel action, the support efforts remaining in this PE were consolidated with Project D907 beginning in FY 1996. Further details may be found in the Tactical Intelligence and Related Activities (TIARA) Congressional Justification Book, Volume II, and the TENCAP Master Plan. This Program Element (PE) focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of TENCAP and is correctly placed in Budget Activity 4.

Acquisition Strategy: As pioneers in rapid acquisition, ASPO's success in delivering systems as those described above to warfighters can be directly attributed to an environment emphasizing stable funding, low density acquisition, minimal use of MILSPECS, and managed competition. By tailoring existing technology, leveraging the best commercial practices, and using commercial and government-off the shelf software, ASPO minimizes risk while maximizing efficiency. Strong user involvement and a robust operations and maintenance program and a vigorous P3I effort ensure programmatic success. Finally, dedicated cradle to grave Integrated Logistics Support (ILS) for TENCAP systems is accomplished through a coordinated effort by Government and contractor personnel and facilities.

Project D560

Page 1 of 4 Pages

Exhibit R-2 (PE 0603730A)

511

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			
4 - Demonstration and Validation		0603730A Tactical Surveillance System - Advanced Development (TIARA)		March 1996	D560
FY 1995 Accomplishments:					
• 2770 Upgraded ETRAC with multi-sensor capability as initial step in advanced development of TES. (Effort funded under PE 0603766 in FY 96.)					
• 3000 Completed development of HOATR (Test Prototype).					
• 1373 Continued support to TENCAP program management and administrative activities (e.g., FFRDC (Aerospace), TEC support, ASPO support and SETA support. (Effort funded under PE 0603766 in FY 1996).					
• 4338 Continued support to efforts being developed (ETRAC and MIES) under PE 0305154D (DARP) (e.g., FFRDC (Aerospace), TEC support, ASPO support and Contractor SETA support).					
Total		11481			
FY 1996 Planned Program: All effort in this project transferred/consolidated under PE 0603766 (Project D907), Tactical Electronic Surveillance System-Adv Dev.					
FY 1997 Planned Program: Program not funded in FY 1997					
B. Project Change Summary					
Previous President's Budget (FY 1996)		FY 1995	FY 1996	FY 1997	
Appropriated Amount (FY 1995)		11717	0	0	
Adjustments to FY 1995		11481			
Appropriated Amount (FY 1996)					
Adjustments to FY 1996					
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget					
Current Budget Submit/President's Budget		11481	0	0	
C. Other Program Funding Summary:					
RDTE, A Budget Activity 4		FY 1995	FY 1996	FY 1997	FY 1998
PE 0603766A Project D907		14519	27460	26060	23200
TENCAP-Adv Dev					
RDTE, A Budget Activity 5					
PE 0604740A Project D662		2049	0	0	0
Tact Surv Sys - Eng Dev					
</					

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603730A Tactical Surveillance System -
Advanced Development (TIARA)

D560

C. Other Program Funding Summary:

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total
PE 0604766A Project D909	18811	23861	15758	20631	21235	28299	27122	155116
TENCAP - Eng Dev								
RDTE, A Budget Activity 7								
PE 0305154D Project P531	39313	42737	47780	35264	13750	13824	13723	193681
DARP								
Other Procurement Army, OPA-2								
BZ 7315 TENCAP	4636	4473	1758	1705	1758	4678	13936	38464
BA 0329 DARP	2411	0	0	0	0	0	0	2411
Procurement, Defense Wide								
0305154D, DARP	51534	80822	98486	94583	76123	72124	67173	430845

D. Schedule Profile

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total
1	2	3	4	1	2	3	4	
Complete Development and Field TSS								
Test Prototype HOATR								
Initiated Adv Dev of TES								

* Milestone Completed

Project D560

Page 3 of 4 Pages

Exhibit R-2 (PE 0603730A)

513

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				
4 - Demonstration and Validation	0603730A Tactical Surveillance System - Advanced Development (TIARA)				D560
A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997		
TES (*1)	2770	0	0		
Common Baseline (*1, *2)	3000				
ASPO In-House (*1)	1207				
FFRDC (*1)	518				
Systems Engineering (Contractor) (*1)	2986				
Systems Engineering (Government) (*1)	1000				
Total	11481	0	0		
(*1) In FY 1996 and beyond, this PE/Project is consolidated under PE 0603766A (TENCAP-Adv Dev), Project D907 (Tactical Electronic Surveillance System-Adv Dev).					
(*2) TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems, including MIES and ETRAC that are funded under the Defense Airborne Reconnaissance Program (DARP)(PE 0305154D).					
B. Budget Acquisition History and Planning Information: Not Applicable.					
Project D560			Exhibit R-3 (PE 0603730A)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603745A Tactical Electronic Support Systems -
Advanced Development (TIARA)

D535

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D535 Intelligence Fusion Analysis Demonstration	1659	5776	2025	0	0	0	0	0	19993

A. Mission Description and Budget Item Justification: This Program Element funds application and validation of advanced computer software and hardware technologies to intelligence fusion analysis functions and prototype development, integration and evaluation of improved tactical intelligence fusion capabilities. This project supports the urgent requirement for an automated tactical intelligence processing system through technology insertion into, and development and evaluation of, prototype upgrades to the All Source Analysis System (ASAS), both during development and after fielding and is appropriately funded in Budget Activity 4.

Acquisition Strategy: This project consists of studies, prototype development and evaluation of the integration of tactical intelligence fusion capabilities into existing systems. The efforts are for joint advanced technology research via contractors, Joint Propulsion Laboratory (JPL), a Federally Funded Research and Development Center (FFRDC), with some funds flowing down to colleges and universities as grants under oversight of JPL.

FY 1995 Accomplishments:

- 600 Expanded and improved the capabilities and performance of the techbase prototype tools in support of template analysis/situation assessment, collection management, advanced image processing, advanced correlation and Counter-Intelligence (CI/HUMINT) analysis to include streamlined integration of asset scheduling and mobility analysis tools, design of algorithms for realistic situation warping of doctrinal templates, incorporation of terrain and mobility analysis techniques and expert tactical knowledge in automated correlation and automated extraction and structuring of data from freetext CI/HUMINT source reports into intelligence information, linking people, facilities, events, etc.
- 359 Initiated the integration of techbase collection management and CI/HUMINT analysis support prototypes into the ASAS Block II systems development architecture: designed an advanced client/server architecture for interfacing situation assessment prototype tools with ASAS Block II for evaluation in an ASAS functional and operational environment.
- 700 Supported the development, integration and evaluation of advanced prototype workstations configured in accordance with Common Operating Environment (COE) standards and employing client-server technology to facilitate rapid and streamlined exchange of information between ASAS and other command and control systems.

Total 1659

FY 1996 Planned Program:

- 3000 Funds battlefield visualization technology demonstration. Develop and evaluate Army Warfighter Experiments and the joint precision strike demonstration program of advanced large screen, automated graphical displays which would provide enhanced situational awareness for tactical commanders.

Project D535

Page 1 of 4 Pages

Exhibit R-2 (PE 0603745A)

515

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
4 - Demonstration and Validation	0603745A Tactical Electronic Support Systems - Advanced Development (TIARA)		D535	
FY 1996 Planned Program: (continued)				
• 1000	Continue to investigate, develop and apply advanced technologies to intelligence fusion prototypes for expanded capabilities and performance in the areas of dynamic situation development/assessment/prediction, collection management, and advanced analysis and correlation, to include: continued streamlined integration of collection management tools for more automated, responsive tactical support: extension of the CI/HUMINT analysis prototype to include automated analysis tools, incorporating the advanced template correlation techniques used in the situation assessment prototype where appropriate; development and integration of state-of-the-art video photogrammetry tools in support of battle damage and low intensity situation assessment.			
• 780	Continue to evaluate, configure and integrate the high-performance, expanded techbase prototype capabilities into operational ASAS prototypes.			
• 850	Continue to support the development, evaluation and refinement of operational prototypes of functional and performance upgrades/improvements to ASAS and their integration into mainline ASAS development and acquisition per the Joint Prototyping Plan.			
• 129	SBIR/STTR			
• 17	Revised Economic Assumptions - Not available for execution			
Total	5776			
FY 1997 Planned Program:				
• 650	Continue to investigate, develop and apply advanced software and hardware processing, storage, display and Input/Output (I/O) technologies to techbase prototypes of high-performance, expanded intelligence fusion capabilities.			
• 825	Continue to evaluate, configure and integrate techbase prototype capabilities into operational ASAS prototypes.			
• 550	Continue to support the development, evaluation and refinement of ASAS operational prototypes and their integration into mainline ASAS development and acquisition per the Joint Prototyping Plan.			
Total	2025			
B. Project Change Summary				
Previous President's Budget (FY 96)		FY 1995	FY 1996	FY 1997
Appropriated Amount (FY 95)		1695	2937	2096
Adjustments to FY 95		1659		
Appropriated Amount (FY 96)			5834	
Adjustments to FY 96			-58	
Adjustments to Budget Year (FY97) since FY 96 President's Budget				-71
Current President's Budget Submit		1659	5776	2025
Project D535		Page 2 of 4 Pages		Exhibit R-2 (PE 0603745A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603745A Tactical Electronic Support Systems -
Advanced Development (TIARA)

D535

Change Summary Explanation:

Funding: FY 96 (+3000) Congressional plus-up, (-103) Congressional cuts, (-58) is the portion of the program that has been proposed for rescission.
FY97 (-71) reduction due to revised inflation rates.

C. Other Program Funding Summary: None

D. Schedule Profile

	FY 1995		FY 1996		FY 1997	
	1	2	3	4	1	2
Expanded Techbase Prototypes						
Interface Adv Spt Assmt with ASAS Block II				X*		
Integrate HUMINT Anal Spt into ASAS Operational Prototype						
Integrate Asset Management into ASAS Block II prototypes						
Incorporate Adv Correlation Techniques into ASAS Oper Prototypes						
Apply Adv Processing Tech into Techbase Prototypes						
Integrate Exp Techbase Capabilities into ASAS Operational Prototypes						

*Milestone Completed

Project D535

Page 3 of 4 Pages

Exhibit R-2 (PE 0603745A)

517

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

March 1996

PE NUMBER AND TITLE

D535

**0603745A Tactical Electronic Support Systems -
Advanced Development (TIARA)**

	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
--	----------------	----------------	----------------

<u>5776</u>	<u>2025</u>
-------------	-------------

2025

Total

rior to

1995

10533

10533

10533

Page 4 of 4 Pages

Exhibit R-3 (PE 0603745A)

518

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603747A Soldier Support and Survivability

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	12189	7698	6680	8816	8293	9314	9006		Continuing
DC09 Unit/Organizational Equipment	1929	2180	1316	2797	1869	1527	1486		Continuing
D603 Land Warrior	6156	0	0	0	0	0	0	0	6156
D610 Food Advanced Development	2091	2103	1946	2429	2774	3343	3600		Continuing
D669 Clothing and Equipment	2013	3415	3418	3590	3650	4444	3920		Continuing

Mission Description and Budget Item Justification: Provide advanced development for unit/organizational equipment, improved individual clothing and equipment, fabric shelters, food, food and field service equipment which will enhance soldier battlefield effectiveness, survivability, sustainment and quality of life. Program element supports advanced development of a new generation of field service support items and shelters, including collective protection and shelter heaters for unit/organizational use to enhance the quality of life of field soldiers and the ability to project forces to spartan environments. Program element also supports advanced development of individual clothing and equipment items to lighten the soldier's load and incorporate protection against chemical and biological agents, thermal nuclear flash, ballistic threats, visual and electronic detection and environmental hazards. The projects in this Program Element support research efforts in the Demonstration and Validation phases of the acquisition strategy and are therefore correctly placed in Budget Activity 4.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603747A Soldier Support and Survivability

PROJECT

DC09

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DC09 Unit/Organizational Equipment	1929	2180	1316	2797	1869	1527	1486	Continuing	Continuing

A. Mission Description and Budget Item Justification: Develop and field soft shelters, showers, latrines and heaters to improve unit sustainability and combat effectiveness.

Acquisition Strategy: Developments transition to Engineering and Manufacturing Development.

FY 1995 Accomplishments:

- 299 Completed Technical/Operational Testing of Type I Solar Cover. Completed design and fabrication of Type II Solar Cover.
- 568 Completed design for the Lightweight Maintenance Enclosure (LME). Procured test prototypes.
- 152 Conducted Market Investigation, completed Integrated Program Summary and procured prototypes of the Ballistic Protective System.
- 282 Conducted contractor testing and redesign of the Laundry and Drycleaning (LADS) and transitioned to Engineering Manufacturing Development.
- 265 Completed Dem/Val of Space Heater Convective (SHC).
- 363 Conducted Market Investigation and built prototypes for the Containerized Self-Service Laundry.
- Total 1929

FY 1996 Planned Program:

- 381 Redesign Ammunition Solar Covers (ASC) Type I to meet both Type I and Type II requirements to improve reliability and stability of munitions in hot environments, complete TT/OT on single solution design. Prepare concept designs for user review of General Purpose Solar Cover which provides lightweight, solar protection that is rapidly erectable and easy to use.
- 465 Perform Early User Testing, downselect best candidate, and initiate TT/OT testing for the Lightweight Maintenance Enclosure (LME) to improve field maintenance capability and equipment readiness.
- 259 Complete design and procure test prototypes for the Ballistic Protective System to reduce vulnerability of palletized supplies.
- 142 Redesign frame system and assess seaming technologies for the Modular General Purpose Tent System (MGPTS) Preplanned Product Improvement (P3I) to provide dual support options and interchangeable components for increased flexibility.
- 440 Complete TT/OT and Type Classify the Containerized Self-Service Laundry to increase quality of life in remote field conditions.
- 439 Build prototypes and conduct TT/OT on the Space Heater Arctic (SHA) and Space Heater Small (SHS) to increase safety, reliability, and efficiency of field heaters.
- 48 SBIR/STTR
- 6 Revised Economic Assumption not available for execution
- Total 2180

Project DC09

Page 2 of 18 Pages

Exhibit R-2 (PE 0603747A)

520

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603747A Soldier Support and Survivability

PROJECT

DC09

FY 1997 Planned Program:

- 290 Complete development and Type Classify the Modular ASC. Fabricate prototype GP Solar Covers for TT/OT.
- 145 Complete development and Type Classify the LME.
- 356 Complete TT/OT testing and Type Classify the Ballistic Protective System.
- 525 Complete development of the thermoelectric capability for integration into the Family of Space Heaters: SHS, SHA, and Space Heater Convective (SHC) for improved heat distribution and increased efficiency.

Total 1316

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current President's Budget Submit

FY 1995 FY 1996 FY 1997

1976 2241 1362

1934

-5

2202

-22

-46

1929

2180

1316

C. Other Program Funding Summary

RDTE, 0604713.DC40, Unit/Organizational

Equipment

OPA3, M86200, Laundry and Drycleaning System

(LADS)

FY 1995 FY 1996 FY 1997 FY 1998 FY 1999 FY 2000 FY 2001

1392 4106 1784 1923 1949 1526 1395

4062 4474 4475

To Total
Compl Cost
Cont Cont

D. Schedule Profile

1

FY 1995

2 3

X*

FY 1996

2 3

FY 1997

2 3

4

X

Completed advanced development of 35k

BTU Space Heater Convective (SHC)

Type Classify SHA and SHS

Completed redesign of Lightweight

Maintenance Enclosure

Complete TT/OT of Ammunition Cover

X

Project DC09

Page 3 of 18 Pages

Exhibit R-2 (PE 0603747A)

521

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603747A Soldier Support and Survivability

PROJECT

DC09

D. Schedule Profile

5661 A.F.

1

2

3

4

1

FY 1996

2

3

4

1

1661 X.F.

2

3

4

Type Classify Ammunition Solar Cover Complete TT/OT for Containerized Self-Service Laundry and Type Classify

*** Completed Milestones**

Project DC09

Page 4 of 18 Pages

Exhibit R-2 (PE 0603747A)

522

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT
4 - Demonstration and Validation		0603747A Soldier Support and Survivability				DC09
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997		
Primary Hardware		1929	2180	1316		
Total		1929	2180	1316		
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or Government	Contract					
Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	
Product Development Organizations						
SSCOM	In-House				FY 1995	FY 1996
Hunter Mfg	Various				1000	1070
Guild Assoc					690	700
Weatherhaven						
Hansen Weather						
GTS						
ARO	MIPR				60	70
TRADOC						
VA Med Ctr						
McClellan AFB						
Army Nat'l Guard						
Support and Management Organizations						
SSCOM					1250	115
Test and Evaluation Organizations						
TECOM/YPG					2015	64
* DC09 Program line is ongoing in nature, and is made up of multiple projects which are on separate project schedules, as a result the EAC is not applicable to DC09.						
Government Furnished Property: None						
Project DC09						
Page 5 of 18 Pages						
Exhibit R-3 (PE 0603747A)						

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		DC09		
4 - Demonstration and Validation	0603747A Soldier Support and Survivability				
	Total				
	Prior to				
	FY 1995	FY 1996	FY 1997	Budget to	Total
				Complete	Program
Subtotal Product Development	12582	1840	1141	Cont	Cont
Subtotal Support and Management	1250	190	95	Cont	Cont
Subtotal Test and Evaluation	2015	64	80	Cont	Cont
Total Project	15847	2180	1316	Cont	Cont

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603747A Soldier Support and Survivability

PROJECT

D603

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D603 Land Warrior	6156	0	0	0	0	0	0	0	6156

A. Mission Description and Budget Item Justification: Land Warrior (LW) is an integrated fighting system for dismounted combat soldiers. The LW program will enhance the soldier's battlefield capabilities through the development and integration of an assortment of Army system/components and technologies into a cohesive, timely, and combat effective system. These systems/components include an integrated individual soldier computer/radio, enhancements to protective clothing and individual equipment, integrated headgear with helmet mounted display and image intensifier, and modular weapon system with thermal weapon sight, infrared aiming light, laser rangefinder, digital compass, video camera, and close combat optic. LW will bring the dismounted soldier into the digital battlefield.

Acquisition Strategy: Per Congressional direction, LW DEM/VAL program and the Generation II Soldier (GEN II) Science and Technology (S&T) program has been merged into a LW EMD program and the Force XXI LW S&T program. The former GEN II S&T program has been restructured to develop advanced technology components for insertion into the LW consolidated program. An Integrated Product Team (IPT) was formed to determine which technologies from the GEN II S&T program will be integrated into the LW program.

FY 1995 Accomplishments:

- 3406 Completed engineering analysis, completed Request for Proposal (RFP), and conducted Source Selection for LW Contract Award.
- 2600 Preliminary Design of Land Warrior System and awarded Land Warrior contract.
- 150 Supported Battleref Advanced Warfighting Experiment (AWE) - Warrior Focus.

Total 6156

FY 1996 Planned Program: None

FY 1997 Planned Program: None

Project D603

Page 7 of 18 Pages

Exhibit R-2 (PE 0603747A)

525

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996	PROJECT																																																																																														
BUDGET ACTIVITY	PE NUMBER AND TITLE																																																																																																	
4 - Demonstration and Validation	0603747A Soldier Support and Survivability	D603																																																																																																
<p>B. Project Change Summary</p> <p>Previous President's Budget (FY 1996) 5458 FY 1996 25935 FY 1997 9453</p> <p>Appropriated Value (FY 1995) 5344</p> <p>Adjustment to FY 1995 812</p> <p>Appropriated Amount (FY 1996) 0</p> <p>Adjustment to FY 1996 -9453</p> <p>Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget 6156 0 0</p> <p>Current President's Budget Submit</p> <p>Change Summary Explanation: Per Congressional direction, LW DEM/VAL program and the Generation II Soldier (GEN II) Science and Technology (S&T) program has been merged into a LW EMD program and the Force XXI LW S&T program.</p> <p>C. Other Program Funding Summary</p> <table border="1"> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> <th>FY 1998</th> <th>FY 1999</th> <th>FY 2000</th> <th>FY 2001</th> <th>To</th> <th>Total</th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Compl</th> <th>Cost</th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Cont</th> <th>Cont</th> </tr> </thead> <tbody> <tr> <td>RDTE, 0603001.DJ50, Force XXI Soldier</td> <td>496</td> <td>29181</td> <td>16277</td> <td>6324</td> <td>2410</td> <td>7180</td> <td>9033</td> <td></td> <td></td> </tr> <tr> <td>RDTE, 0604713.D667, Land Warrior</td> <td></td> <td></td> <td>48917</td> <td>37616</td> <td>20354</td> <td></td> <td></td> <td></td> <td>107383</td> </tr> <tr> <td>OPA3, M80500, Enhanced Land Warrior</td> <td></td> <td></td> <td></td> <td></td> <td>59389</td> <td>77844</td> <td>93542</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Cont</td> </tr> </tbody> </table> <p>D. Schedule Profile</p> <table border="1"> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> <th>FY 1998</th> <th>FY 1999</th> <th>FY 2000</th> <th>FY 2001</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td></td> <td></td> <td></td> <td>X*</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Contract Awarded</p> <p>* Completed Milestones</p>						FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total									Compl	Cost									Cont	Cont	RDTE, 0603001.DJ50, Force XXI Soldier	496	29181	16277	6324	2410	7180	9033			RDTE, 0604713.D667, Land Warrior			48917	37616	20354				107383	OPA3, M80500, Enhanced Land Warrior					59389	77844	93542												Cont		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	1	2	3	4	1	2	3	4				X*				
	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total																																																																																									
								Compl	Cost																																																																																									
								Cont	Cont																																																																																									
RDTE, 0603001.DJ50, Force XXI Soldier	496	29181	16277	6324	2410	7180	9033																																																																																											
RDTE, 0604713.D667, Land Warrior			48917	37616	20354				107383																																																																																									
OPA3, M80500, Enhanced Land Warrior					59389	77844	93542																																																																																											
									Cont																																																																																									
	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001																																																																																											
1	2	3	4	1	2	3	4																																																																																											
			X*																																																																																															

Project D603

Page 8 of 18 Pages

Exhibit R-2 (PE 0603747A)

526

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603747A Soldier Support and Survivability

D603

A. Project Cost Breakdown

System Engineering/Program Management

System Test and Evaluation

Prototype Development and Manufacturing

Total

FY 1995

6006

FY 1996

FY 1997

150

6156

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Government

Performing

Activity

Product Development Organizations

Hughes

Jul 95

Support and Management Organizations

SSCOM

Test and Evaluation Organizations

TECOM

Project Office

Performing Activity

Award or Obligation Date

EAC

EAC

Total Prior to

FY 1995

FY 1995

FY 1996

FY 1997

Budget to Complete

Total Program

4392

1614

150

Government Furnished Property

Contract

Method/Type

or Funding

Vehicle

Award or Obligation Date

Delivery Date

Product Development Property

Thermal Weapons

Sight

Support and Management Property: None

Test and Evaluation Property: None

Total Prior to

FY 1995

FY 1995

FY 1996

FY 1997

FY 1998

Budget to Complete

Total Program

60

1300

1360

Project D603

Page 9 of 18 Pages

Exhibit R-3 (PE 0603747A)

527

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
4 - Demonstration and Validation	0603747A Soldier Support and Survivability	D603		
	Total			
	Prior to			
	FY 1995	FY 1995	FY 1996	FY 1997
		4392		
		1614		
		150		
		6156		
Subtotal Product Development				
Subtotal Support and Management				
Subtotal Test and Evaluation				
Total Project				
			Budget to Complete	Total Program
				30142
				8102
				3300
				41544

Project D603

Page 10 of 18 Pages

Exhibit R-3 (PE 0603747A)

528

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603747A Soldier Support and Survivability								D610	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D610	Food Advanced Development	2091	2103	1946	2429	2774	3343	3600	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Development of Joint Service Food/Food Service Equipment to improve individual combat effectiveness and reduce logistics burden and O&S costs of subsistence support for servicemen and women. Enhance rations by increasing quality, acceptability and variety. Develop multi-fuel, rapidly deployable field food service equipment to support combat, humanitarian missions and operations-other-than-war. Improve equipment to enhance safety in food service, utilize battlefield fuel and decrease fuel and water requirements. Program is reviewed and validated twice annually by the DoD Food and Nutrition Research and Engineering Board as part of the Joint Service Food Program. Conduct Advanced Development of improved subsistence and subsistence support items to enhance soldier effectiveness and quality of life in all four Services as part of an integrated DOD Food Research, Development, Test, Evaluation and Engineering (RDTE&E) program.</p> <p>Acquisition Strategy: Developments transition to Engineering and Manufacturing Development.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 553 Conducted user test/evaluation of prototype Powered Multifuel Burners (PMB) and improved field food service refrigeration, and transitioned PMB to engineering development. 241 Transitioned Technical Data Package (TDP) for Unitized Group Ration (UGR), which provides a simplified/flexible group feeding system, to Defense Personnel Supply Center (DPSC) for 1Q96 procurement. Completed Joint Service Nutritional Labeling and transitioned to DPSC for procurement and fielding. 588 Completed development of and field tested nutritional information for operational rations for the improved Long Range Patrol Ration. Transitioned improved Tray Pack Ration and improved Cold Weather Ration to procurement. 180 Completed test and evaluation of galley improvements aboard Navy P-3 subchaser aircraft to provide cost effective, commercially available alternatives to military galley operations. 468 Completed preliminary automation requirements to automate the Joint Service Recipe System to eliminate duplication of effort between Services and provide real time recipe revisions and nutritional analyses to field activities. 61 Evaluated new and modified equipment components of the Army Field Feeding System-Future to provide improved food service operations and performance in extremely cold weather. <p>Total 2091</p>											

Project D610

Page 11 of 18 Pages

Exhibit R-2 (PE 0603747A)

529

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
4 - Demonstration and Validation	0603747A Soldier Support and Survivability		March 1996	D610
FY 1996 Planned Program:				
•	580	Conduct user evaluation of hardware and software developed to automate the Joint Service Recipe System to allow for timely electronic release of updated/new recipes.		
•	265	Complete technical and user testing of improved Air Force food service refrigeration system to provide highly mobile, efficient and reliable field refrigeration. Transition TDP to procurement.		
•	608	Develop and conduct user evaluations of high potential individual and group ration components. Transition components with high acceptance to fielded rations, improving ration quality and increasing available menus. Identify components and develop medical supplement for the United Group Ration (UGR) to increase logistical efficiency of medical field feeding.		
•	100	Conduct user testing of new Mobility Enhancing Rations Components (MERC) to increase readiness, ease logistical burden, and improve ration quality.		
•	60	Conduct market survey and develop packaging system for Ration Snack Pack to increase acceptability of operational rations.		
•	225	Complete development of Long Range Patrol Rations to minimize weight and volume and transition to procurement. Develop and conduct technical tests of new composite packaging for rations that will increase consumption and field troop quality of life.		
•	212	Evaluate new shelters for Kitchen Company Level Field Feeding-Enhanced and incorporate changes identified in Mobile Kitchen Trailer-Improvement program including new technology to meet future field feeding requirements to improve system performance in all environments.		
•	47	SBIR/STTR		
•	6	Revised Economic Assumption not available for execution		
Total	2103			
FY 1997 Planned Program:				
•	137	Transition first generation automated system for the Joint Service Recipe System to the Service's field activities.		
•	609	Continue to identify and conduct user testing of improvements for individual and group ration systems. Transition selected heat and serve ration components and MRE improvements, increasing menu variety.		
•	216	Conduct user testing of rations which incorporate new composite ration packaging system, demonstrating sustained ration quality over life.		
•	260	Conduct user evaluation of Snack Packs and medical supplement for UGR and transition to procurement. Continue user evaluations of MERC to provide eat on the move capability. Transition selected components to procurement.		
•	356	Initiate design and fabrication of Marine Corps field kitchen based on centralized heating technology providing highly mobile, efficient field feeding capability.		
•	141	Perform technical feasibility testing on NDI waste reduction/handling equipment which will reduce the field back-haul and trash removal requirements.		
•	227	Initiate development of Field Sanitation Unit for the Air Force Bare Base system to ensure health and safety during field feeding operations.		
Total	1946			
Project D610		Page 12 of 18 Pages		
		Exhibit R-2 (PE 0603747A)		

530

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

March 1996

PE NUMBER AND TITLE

0603747A Soldier Support and Survivability

D610

FY 1997

1946

1946

Performing Organizations

Total

Prior to

FY 1995

10116

3

569

200

135
1:1

*D610 program line is ongoing in nature and is made up of multiple low cost projects which are on separate, staggered project schedules, as a result EAC is not applicable.

Government Furnished Property: None

10116

569

735

11420

Page 14 of 18 Pages

Exhibit R-3 (PE 0603747A)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

0603747A Soldier Support and Survivability

PROJECT

D669

4 - Demonstration and Validation

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D669 Clothing and Equipment	2013	3415	3418	3590	3650	4444	3920	Continuing	Continuing

A. Mission Description and Budget Item Justification Uses state-of-the-art technology to develop improved clothing and individual equipment items to enhance the effectiveness, lethality, sustainability, survivability and quality of life of the individual soldier.

Acquisition Strategy: Developments transition to Engineering and Manufacturing and then to expense procurement.

FY 1995 Accomplishments:

- 58 Assisted TRADOC in revising requirements documents for the Individual Microclimate Cooling System by demonstration to potential users.
- 1620 Completed modifications of the Self-Contained Toxic Environment Protective Outfit (STEPO) test items, conducted equipment prove-out, New Equipment Training, and initiated Phase II DT/OT.
- 56 Completed development effort on Liquid Microclimate Cooling Vest.
- 279 Conducted BDO Test and Analysis. Conducted Front End Analysis (FEA) for Garrison Uniform. Tested chemical agents on Joint Service Lightweight Integrated Suit Technology (JLIST) program materials.

Total 2013

FY 1996 Planned Program:

- 100 Conduct market survey, update requirements document, revise acquisition strategy for Special Purpose Eyewear Cylindrical System (SPECS) Preplanned Product Improvement (P3I)
- 1304 Evaluate commercial samples and review experimental models for design feasibility of the Modular Load System (MLS) (single point release mechanism) and the Body Armor Set Individual Countermine (BASIC) P3I Boot.
- 1929 Complete Phase II DT/OT, conduct scoring conference, complete assessment reports, type classify, provide Integrated Logistic Support, complete procurement package, and transition to production for STEPO.

• 72 SBIR/STTR

• 10 Revised Economic Assumption not available for execution

Total 3415

Project D669

Page 15 of 18 Pages

Exhibit R-2 (PE 0603747A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE							D669
4 - Demonstration and Validation								
FY 1997 Planned Program:								
• 1368	Conduct market investigation, test new materials, develop initial design concepts for: Reduced Weight Explosive Ordnance Disposal (EOD) Suit and Arctic Canteen.							
• 2050	Develop initial design concepts, conduct technical and early user evaluations and downselect designs/materials for test prototypes for: SPECS P3I and Advanced Combat Helmet.							
Total	3418							
B. Project Change Summary								
Previous President's Budget (FY 1996)								
Appropriated Amount (FY 1995)								
Adjustment to FY 1995	-4							
Appropriated Amount (FY 1996)								
Adjustment to FY 1996	-34							
Adjustments to Budget Year (FY 1997) since FY 1996								
President's Budget								
Current President's Budget Submit	2013							
C. Other Program Funding Summary:								
RDTE, 0604713.DL40, Clothing & Equipment								
OMA, 114092000, Central Funding & Fielding								
D. Schedule Profile								
Completed Phase I DT/OT of STEPO								
Completed Equipment Modifications of STEPO								
Complete Phase II of DT/OT and Assessment Reports and Type Classify STEPO								
Conduct market survey, update requirements document, revise Acquisition Strategy for SPECS P3I								
Develop design concepts for SPECS P3I and Advanced Combat Helmet (ACH)								
Total								

Page 16 of 18 Pages
 Exhibit R-2 (PE 0603747A)
 Project D669

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603747A Soldier Support and Survivability

D669

D. Schedule Profile

FY 1995

FY 1996

FY 1997

1 2 3 4 1 2 3 4 1 2 3 4

Conduct technical and early user evaluation for SPECS P3I and ACH

Select test prototype designs for SPECS P3I and ACH

Evaluate commercial samples for MLS

Review experimental MLS prototypes for feasibility

Evaluate commercial designs and use CAD/CAM for BASIC P3I Boot design

Conduct market survey for Reduced Weight EOD Suit and Arctic Canteen

Test new materials, develop initial designs for Reduced Weight EOD Suit and Arctic Canteen

X

X

X

X

X

X

X

* Completed Milestones

Project D669

Page 17 of 18 Pages

Exhibit R-2 (PE 0603747A)

535

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
4 - Demonstration and Validation	0603747A Soldier Support and Survivability			D669
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997
Clothing and Equipment		2013	3415	3418
Total		2013	3415	3418
B. Budget Acquisition History and Planning Information: None				

Project D669

Page 18 of 18 Pages

Exhibit R-3 (PE 0603747A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603760A Distributive Interactive Simulations -
Advanced Development

DC80

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DC80 Reconfigurable Simulator Advanced Development	8063	0	0	0	0	0	0	0	8063

A. Mission Description and Budget Item Justification: This program element (PE) provides for advanced development of an overarching architecture for reconfigurable simulators. Project DC80 is focused on development of both the software and hardware interfaces and specifications required to completely determine a reconfigurable simulator. Emphasis is also placed on defining those software and hardware modules which have broad applicability across a wide range of reconfigurable simulators. Work done on this program will have benefit across the Army and DoD by providing standards for interoperability and software reuse in this emerging domain. This program element focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of reconfigurable simulators and is correctly placed in Budget Activity 4.

Project DC80 - Reconfigurable Simulators Advanced Development: Initiates advanced development of reconfigurable simulators for use in TRADOC Battle Laboratories. Program provides advanced development of modular software and hardware architectures for reconfigurable simulators. Development will provide a common framework for the development of a new generation of reconfigurable simulators that can be used to explore a wide variety of critical issues for the Force Projection Army. FY 95 efforts include work on a reconfigurable generic rotary wing aircraft simulator, an armored vehicle simulator which will provide a basis for work on any ground vehicle system, a battle command and control vehicle, a fire support vehicle for use by both the artillery and air defense, and a combat service support module.

Acquisition Strategy: Competitive development leading to competitive procurement against performance specifications

FY 1995 Accomplishments:

- 5263 Developed overarching software architecture for reconfigurable simulators through complete domain analysis
- 2100 Developed and demonstrated modular hardware architecture suitable for reconfiguration
- 700 Defined generic software modules necessary for defining the reconfigurable simulator in the context of its architecture

Total 8063

FY 1996 Planned Program: No planned program.

FY 1997 Planned Program: No planned program.

Project DC80

Page 1 of 3 Pages

Exhibit R-2 (PE 0603760A)

537

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT																																																																						
BUDGET ACTIVITY		PE NUMBER AND TITLE																																																																							
4 - Demonstration and Validation		0603760A Distributive Interactive Simulations - Advanced Development	DC80																																																																						
<p>B. Project Change Summary</p> <p>Previous President's Budget (FY 1996) 11787</p> <p>Appropriated Value (FY 1995) 8209</p> <p>Adjustments to FY 1995 Appropriated Value -146</p> <p>Current President's Budget Submit 8063</p> <p>Change Summary Explanation:</p> <p>Funding: Reprogrammed (2192) from Project DC81, PE 0603760A, 99K was a rescission and 2239 withdrawn to meet MPA requirements</p>																																																																									
<p>C. Other Program Funding Summary</p> <table border="1"> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> <th>FY 1998</th> <th>FY 1999</th> <th>FY 2000</th> <th>FY 2001</th> <th>To Compl</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>RDTE, A Budget Activity 5</td> <td>2279</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>2279</td> </tr> <tr> <td>PE 0604760A, Project DC81 Distributive Interactive Simulation</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RDTE, A Budget Activity 5</td> <td>3373</td> <td>5997</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>9370</td> </tr> <tr> <td>PE 0604715A Project DC91, Distributive Interactive Simulation</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RDTE, A Budget Activity 5</td> <td>0</td> <td>0</td> <td>3086</td> <td>10956</td> <td>6737</td> <td>16311</td> <td>13345</td> <td>Cont'd</td> <td>Cont'd</td> </tr> <tr> <td>PE 0604760A Project DC77, Interactive Simulation</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost	RDTE, A Budget Activity 5	2279	0	0	0	0	0	0	0	2279	PE 0604760A, Project DC81 Distributive Interactive Simulation										RDTE, A Budget Activity 5	3373	5997	0	0	0	0	0	0	9370	PE 0604715A Project DC91, Distributive Interactive Simulation										RDTE, A Budget Activity 5	0	0	3086	10956	6737	16311	13345	Cont'd	Cont'd	PE 0604760A Project DC77, Interactive Simulation									
	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost																																																																
RDTE, A Budget Activity 5	2279	0	0	0	0	0	0	0	2279																																																																
PE 0604760A, Project DC81 Distributive Interactive Simulation																																																																									
RDTE, A Budget Activity 5	3373	5997	0	0	0	0	0	0	9370																																																																
PE 0604715A Project DC91, Distributive Interactive Simulation																																																																									
RDTE, A Budget Activity 5	0	0	3086	10956	6737	16311	13345	Cont'd	Cont'd																																																																
PE 0604760A Project DC77, Interactive Simulation																																																																									
<p>D. Schedule Profile: The efforts funded in this project are non-system specific and represent continuing advanced development in the area of Reconfigurable Simulators; therefore, no milestones are provided.</p> <table border="1"> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> </tr> </thead> <tbody> <tr> <td>Request for Proposal release</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>Contract Award</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Software/Hardware Integration</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					FY 1995	FY 1996	FY 1997	Request for Proposal release	1	2	3	Contract Award				Software/Hardware Integration																																																									
	FY 1995	FY 1996	FY 1997																																																																						
Request for Proposal release	1	2	3																																																																						
Contract Award																																																																									
Software/Hardware Integration																																																																									

Project DC80

Page 2 of 3 Pages

Exhibit R-2 (PE 0603760A)

538

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

**0603760A Distributive Interactive Simulations -
Advanced Development**

DC80

A. Project Cost Breakdown

Software Development
Modular Hardware Development
Technical Data
Total

FY 1995 FY 1996 FY 1997
5263
2100
700
8063

B. Budget Acquisition History and Planning Information: Not Applicable.

Project DC80

Page 3 of 3 Pages

Exhibit R-3 (PE 0603760A)

539

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									PROJECT
4 - Demonstration and Validation		0603766A Tactical Exploitation of National Capabilities (TENCAP) - Demonstration/Validation (TIARA)									D907
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D907	Tactical Electronic Surveillance System - Adv Dev	14519	27460	26060	23200	27094	28151	32668	Continuing	Continuing	

A. Mission Description and Budget Item Justification: Supports the tactical commander's intelligence requirements for contingency force development and deep battle targeting as stated in Field Manual 100-5. Specific developments are managed within the Army's Tactical Exploitation of National Capabilities (TENCAP) program. The scope of the program is to leverage specific data and capabilities available from existing and emerging National and selected theater capabilities that meet stated Army tactical intelligence information and targeting needs to correct deficiencies, and develop concepts, techniques and prototype processors to exploit critical data for near-real time integration into the appropriate tactical echelon. This project supports the advanced development/enhancement of the Electronic Tactical User Terminal (ETUT), Mobile Integrated Tactical Terminal (MITT) (replaces the Tactical High Mobility Terminal (THMT)), Forward Area Support Terminal (FAST), Tactical Exploitation System (TES), and Electronic Processing and Dissemination System (EPDS). The Army's emerging TES will incorporate the standards and protocols dictated by the Common Imagery Ground Surface System (CIGSS) program. TES brings all of the existing and emerging Army TENCAP capabilities (EPDS, MIES, and ETRAC) into an integrated common baseline; downsized modular and scaleable to meet a wide range of contingency requirements. TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems, including MIES and ETRAC that are funded under the Defense Airborne Reconnaissance Program (DARP) (PE 0305154D). Specific details are provided in the Tactical Intelligence and Related Activities (TIARA) Congressional Justification Book, Volume II, and in the Army TENCAP Master Plan. This Program Element (PE) focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of TENCAP and is correctly placed in Budget Activity 4.

Acquisition Strategy: As pioneers in rapid acquisition, ASPO's success in delivering systems as those described above to warfighters can be directly attributed to an environment emphasizing stable funding, low density acquisition, minimal use of MILSPECS, and managed competition. By tailoring existing technology, leveraging the best commercial practices, and using commercial and government-off the shelf software, ASPO minimizes risk while maximizing efficiency. Strong user involvement and a robust operations and maintenance program and a vigorous P31 effort ensure programmatic success. Finally, dedicated cradle to grave Integrated Logistics Support (ILS) for TENCAP systems is accomplished through a coordinated effort by Government and contractor personnel and facilities.

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY		DATE	PROJECT
4 - Demonstration and Validation		March 1996	D907
PE NUMBER AND TITLE		0603766A Tactical Exploitation of National Capabilities (TENCAP) - Demonstration/Validation (TIARA)	
<p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 8790 Continued to pursue technology for the refinement of the TENCAP Common Baseline for fully exploiting National Capabilities to meet the changing environment (to include Demand Assign Multiple Access (DAMA) Appliqué into Common Baseline Synthesized UHF Computer Controlled Sub-System (SUCCESS) radios and support to the Joint Collection Management Tool (JCMT), the follow-on to the Army's Collection Management Support Tools (CMST). 736 Initiated study for concept design of the TES. 664 Continued advanced development efforts to retrofit ETUTs with enhanced MITT hardware and software. 836 Conducted concept design study for incorporating EPDS functionality into ETUT. 3493 Continued support to TENCAP program management with administrative activities (e.g. FFRDC (Aerospace), ARL support, ASPO support and Contractor SETA support). <p>Total 14519</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 10696 Continue to pursue technology for the refinement of the TENCAP Common Baseline for fully exploiting National Capabilities to meet emerging worldwide contingency scenarios such as upgrades to Communication System Processor (CSP) to incorporate Tactical Packet Network (TPN) and Defense Switched Network (DSNET) connectivity, DAMA appliqué to SUCCESS radios and support to JCMT. 7600 Initiate design concept and prototype development of Tactical Exploitation Systems (TES) with state-of-the-art hardware and software. 400 Complete advanced development effort to retrofit ETUTs with enhanced MITT hardware and software. 5120 Continue support to TENCAP program management with administrative activities (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC). 2980 Continue support to efforts being developed under PE 0305154D (DARP) Project P531 (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC). 587 Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR). 77 Revised Economic Assumptions amount not available for execution. <p>Total 27460</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 6917 Continue to pursue technology for the refinement of the TENCAP Common Baseline for fully exploiting National Capabilities to meet emerging worldwide contingency scenarios 10899 Initiate advanced development efforts for ground processing technologies for new National sensors capabilities that will be incorporated into TES 5270 Continue support to TENCAP program management with administrative activities (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC). 2974 Continue support to efforts being developed under PE 0305154D (DARP) Project P531 (e.g., FFRDC (Aerospace), ASPO, SETA, and TEC). <p>Total 26060</p>			

Project D907

Page 2 of 5 Pages

Exhibit R-2 (PE 0603766A)

541

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	March 1996	PROJECT D907
BUDGET ACTIVITY	PE NUMBER AND TITLE							
4 - Demonstration and Validation	0603766A Tactical Exploitation of National Capabilities (TENCAP) - Demonstration/Validation (TIARA)							
B. Project Change Summary	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Total Cost
Previous President's Budget (FY 1996)	14815	28369	26913					
Appropriated Amount (FY 1995)	14519							
Adjustments to FY 1995 *								
Appropriated Amount (FY 1996)		27738						
Adjustments to FY 1996		-278						
Adjustment to Budget Year (FY 1996) since FY 1996 President's Budget			-853					
Current Budget Submit/President's Budget	14519	27460	26060					
Change Summary Explanation:								
Funding: FY 1996: (-278) Revised economic assumptions								
FY 1997: (-853) Revised inflation rate								
C. Other Program Funding Summary	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Total Cost
RDTE, A Budget Activity 4	11481	0	0	0	0	0	0	
PE 0603730A Project D560								
Tact Surv Sys - Adv Dev								
RDTE, A Budget Activity 5	2049	0	0	0	0	0	0	
PE 0604740A Project D662								
Tact Surv Sys - Eng Dev								
PE 0604766A Project D909	18811	23861	15758	20631	21235	28299	27122	Cont
TENCAP - Eng Dev								
RDTE, D Budget Activity 7	39313	42737	47780	35264	13750	13824	13723	Cont
PE 0305154D Project P531								
DARP								
Other Procurement Army, OPA-2								
BZ 7315 TENCAP	4636	4473	1758	1705	1758	4678	13936	Cont
BA 0329 DARP	2411	0	0	0	0	0	0	
Project D907								
Page 3 of 5 Pages								
Exhibit R-2 (PE 0603766A)								

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
D907

4 - Demonstration and Validation

0603766A Tactical Exploitation of National
Capabilities (TENCAP) - Demonstration/Validation
(TIARA)

C. Other Program Funding Summary

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
51534	80822	98486	94583	76123	72124	67173	Cont	Cont

Procurement, Defense Wide
PE 0305154D Project P531

D. Schedule Profile

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
1	2	3	4	1	2	3

Complete Adv Dev ETUT Retrofit
Initiate Analysis/Design Concept for TES
Initiate Prototype Development for TES
Complete Adv Dev of DAMA Appliqué
into TENCAP Common Baseline Success
Radios

Complete Adv Dev of 5 Additional
MITTS

* Milestone Completed

X

X

X*

Project D907

Page 4 of 5 Pages

Exhibit R-2 (PE 0603766A)

543

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
4 - Demonstration and Validation	0603766A Tactical Exploitation of National Capabilities (TENCAP) - Demonstration/Validation (TIARA)			D907
A. Project Cost Breakdown				
Common Baseline (*1, *2)	8790	10696	6917	
TES (*2)	736	7600	10899	
ETUT	1500	400	0	
ASPO in- House (*2, *3, *4)	1109	2541	2479	
FRDC (*2)	657	219	95	
System Engineering (Contractor) (*2, *3)	1227	4115	4620	
System Engineering (Government) (*2, *3)	500	1225	1050	
SBIR/STTR		587		
Revised Economic Assumptions amount not available for Execution		77		
Total	14519	27460	26060	
<p>(*1) TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems (including MIES and ETRAC that are funded under the DARP (PE 0305154D)).</p> <p>(*2) In FY 1996 and beyond, efforts previously funded under 0603730A.D560 are consolidated into this project.</p> <p>(*3) Approximately 40% of program management cost in FY 1996 and FY 1997 support efforts being developed under PE 0305154D.P531.</p> <p>(*4) The ASPO In-House support in this project also supports efforts being developed under PE 0604766A.D909.</p>				
B. Budget Acquisition History and Planning Information:	Not Applicable			

Project D907

Page 5 of 5 Pages

Exhibit R-3 (PE 0603766A)

544

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603774A Night Vision Systems - Advanced

D131

Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D131 Night Vision Systems Advanced Development	3145	2891	2829	3151	3110	3534	3507	Continuing	Continuing

A. Mission Description and Budget Item Justification. This program element encompasses the advanced development phase of the Army Acquisition cycle for Night Vision and Electro-Optic (NVEO) devices/systems and prepares them for engineering development. The key objective of this program is to provide NVEO devices/systems for acquisition and engagement of enemy targets at maximum weapon system ranges under degraded battlefield/weather conditions and in countermeasure environments. The efforts are centered around development of countermeasure and electro-optic sensors for the individual soldiers and combat vehicles to meet stated Army deficiencies. This project provides the mechanism to transition tech base programs for electro-optic sensors to the engineering manufacturing development (EMD) phase of the acquisition cycle. This project provides the funding necessary to institute advances for product improvement or horizontal technology integration (HTI) to upgrade current capabilities. The focus is on efforts with advanced technology development and is properly placed in this Budget Activity.

Acquisition Strategy: The Long Range Advanced Scout Surveillance System and the Advanced Second Generation FLIR projects, both are based on development contracts that were competitively awarded utilizing best value source selection procedures.

FY 1995 Accomplishments:

- 1395 Completed the Standardized Detector Dewar Assembly (SADA) program. Twenty-five (25) units were delivered and integrated into on-going development of 2nd Generation IR systems such as ITAS.
- 390 Provided support for Stingray Task Force XXI Advanced Warfighting Experiment (AWE) participation.
- 836 Began development of Advanced Second Generation FLIR (SGF) B kit features such as aviation application, digital imagery interface card, improved optical (OI) features, etc.
- 524 Implement miniaturization of electronic components and optimize optical design for mounted warrior helmet mounted display.
- Total 3149

FY 1996 Planned Program:

- 550 Continue support for Stingray Task Force XXI AWE participation.
- 2062 Continue Advanced Second Generation FLIR (SGF) improvement for HTI B kit. Demonstrate the Comanche applicability as the aviation B Kit for Apache applications.
- 200 Develop alternative approaches to Long Range Advanced Scout Surveillance System (LRAS3) to support system EMD in FY97.
- 58 SBIR/SSTR Reduction - Not available for execution
- 21 Revised Economic Assumption - Not available for execution
- Total 2891

Project D131

Page 1 of 4 Pages

Exhibit R-2 (PE 0603774A)

545

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996																																
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																	
4 - Demonstration and Validation	0603774A Night Vision Systems - Advanced Development	D131																																	
<p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 315 Complete support for Stingray Task Force XXI AWE participation. • 283 Integrate digital imagery interface card into HTI SGF B kit. • 1665 Integrate in-house prototype of aviation SGF B kit into Apache. • 566 Integrate Advanced SGF B kit features into M2A3, BFVS and M8. <p>Total 2829</p>																																			
<p>B. Project Change Summary</p> <table border="1"> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget (FY 1996)</td> <td>2678</td> <td>2960</td> <td>2919</td> </tr> <tr> <td>Appropriated Amount (FY 1995)</td> <td>2621</td> <td></td> <td></td> </tr> <tr> <td>Adjustment to FY 1995</td> <td>524</td> <td></td> <td></td> </tr> <tr> <td>Appropriated Amount (FY 1996)</td> <td></td> <td>2908</td> <td></td> </tr> <tr> <td>Adjustment to FY 1996</td> <td></td> <td>-17</td> <td>-90</td> </tr> <tr> <td>Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Current President's Budget Submit</td> <td>3149</td> <td>2891</td> <td>2829</td> </tr> </tbody> </table>					FY 1995	FY 1996	FY 1997	Previous President's Budget (FY 1996)	2678	2960	2919	Appropriated Amount (FY 1995)	2621			Adjustment to FY 1995	524			Appropriated Amount (FY 1996)		2908		Adjustment to FY 1996		-17	-90	Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget				Current President's Budget Submit	3149	2891	2829
	FY 1995	FY 1996	FY 1997																																
Previous President's Budget (FY 1996)	2678	2960	2919																																
Appropriated Amount (FY 1995)	2621																																		
Adjustment to FY 1995	524																																		
Appropriated Amount (FY 1996)		2908																																	
Adjustment to FY 1996		-17	-90																																
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget																																			
Current President's Budget Submit	3149	2891	2829																																
<p>Change Summary Explanation:</p> <p>Funding: FY 1995 TFXI for Stingray participation (+1124)</p> <p>FY 1995 Bill Payer (-600)</p> <p>FY 1996 Revised economic assumptions, (-17)</p> <p>FY 1997 PBD 604 inflation assumptions, (-90)</p>																																			

Project D131

Page 2 of 4 Pages

Exhibit R-2 (PE 0603774A)

546

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603774A Night Vision Systems - Advanced Development

D131

C. Other Program Funding Summary

PE 0602709A/Night Vision and Electro-Optical Technology RDTE, A Budget Activity 3

PE 0603710A/Night Vision Advanced Development RDTE, A Budget Activity 4

PE 0604710A/Night Vision Devices Engineering Development RDTE, A Budget Activity 5

D. Schedule Profile

1

FY 1995

2 3

X*

FY 1996

2 3

FY 1997

2 3 4

FY 1998

2 3 4

FY 1999

2 3 4

FY 2000

2 3 4

FY 2001

2 3 4

Implement development of integrated helmet mounted display program

Coordinate commencement of Stingray participation in Task Force XXI AWE & coordinate warfighting experiment planning with mounted battlelab

Advanced B kit features transition to HTI B kit

Implementation system integration program

Prepare acquisition documentation and implement development contract

Implement in-house prototype

*Milestone Completed

Project D131

Page 3 of 4 Pages

Exhibit R-2 (PE 0603774A)

547

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE		0603774A Night Vision Systems - Advanced Development	
4 - Demonstration and Validation				D131	
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997	
Primary Hardware Development		700	1721	1800	
Ancillary Hardware Development		1063	0	0	
Contractor Engineering Support		300	260	260	
Government Engineering Support		878	400	400	
Travel		45	45	40	
Miscellaneous		63	86	29	
Development Test & Evaluation		100	300	300	
Funds Not Available for Execution			79		
Total		3149	2891	2829	
B. Budget Acquisition History and Planning Information: Not applicable.					

Project D131

Page 4 of 4 Pages

Exhibit R-3 (PE 0603774A)

Project D131

Page 4 of 4 Pages

Exhibit R-3 (PE 0603774A)

548

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603790A NATO Research and Development

PROJECT

D691

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D691 NATO Research and Development	0	0	9963	10207	7454	8010	8621	Continuing	Continuing

A. Mission Description and Budget Item Justification: The program implements the provisions of Title 10 U.S. Code, Section 2350a, Cooperative Research and Development (R&D) Projects: Allied Countries. The objective is to improve, through the application of emerging technologies, the conventional defense capabilities of the United States, the North Atlantic Treaty Organization (NATO), and the U.S. major non-NATO allies. This program element only funds the U.S. equitable share of the cooperative R&D project spent in the U.S. Projects are implemented with the allied partners through International Agreements which define the scope, cost and work sharing arrangements, management, contracting, security, data protection and third party transfers. By technology sharing the program jointly develops equipment with our allies to improve operational efforts by achieving multinational force compatibility through the use of similar equipment and improved interfaces. Funds support all the R&D costs including the identification of cooperative opportunities and administration of the program. This program focuses on international cooperative technology demonstration, validation, and interoperability of the Battlefield Combat Identification System, FBCB2/Applicé Systems, Adaptive Digital Beamforming for THAAD radars, helicopter helmet mounted displays, military network switching, PATRIOT Tactical Operations Center, and is correctly placed in Budget Activity 4. The planned program is shown below. The final program will be reported separately as required by 10 USC 2350a(f).

FY 1995 Accomplishments: This effort funded in Research, Development, Test and Evaluation (RDTE), Defense-wide appropriation (PE 0603790D Project P790).

FY 1996 Planned Program: This effort funded in Research, Development, Test and Evaluation (RDTE), Defense-wide appropriation (PE 0603790D Project P790).

FY 1997 Planned Program:

- 1613 Combat Identification (CI) Interoperability Demonstration (Partners: France, Germany, United Kingdom): Complete integration of the Battlefield Combat Identification System (BCIS) on armored vehicles, conduct interoperability trials with FR, GE, and UK prototype systems in Munster, GE.
- 2500 Battlefield Command and Control (C2) Systems Interoperability (Partner: Germany): Implement, test and evaluate message exchange through the Intelligent Translation Gateway, over the Defense Simulation Internet and the Digital Interface Laboratory in a simulated Operational Environment.
- 2000 Adaptive Beamforming Technology (ABFT) for Wide Band Phased Array Radars (Partner: United Kingdom): Improve detection in severe Electronic CM environments. Extend narrowband ABFT techniques to wideband THAAD radar, develop ABFT architectures and assess performance trade-offs.
- 1600 Covert Night/Day Operations in Rotorcraft (CONDOR) (Partner: United Kingdom): Improve helicopter helmet mount display and flight controls. Fabrication of Advanced Visionics System (AVS) and Advanced Flight Control System (AFCS) prototypes, system integration and flight testing.
- 450 High Technology Switch (Partner: France): Develop advanced interoperable Asynchronous Transfer Mode (ATM) switches for ATM communications field experiments, military networks and test beds, Digital Interoperability Laboratory (DIL) and Battlefield Information Transition System (BITS).

Project D691

Page 1 of 6 Pages

Exhibit R-2 (PE 0603790A)

549

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996	PROJECT							
BUDGET ACTIVITY	PE NUMBER AND TITLE	0603790A NATO Research and Development			D691						
4 - Demonstration and Validation											
FY 1997 Planned Program: (continued)											
• 400 Extended Air Defense (AD) Command and Control Interoperability (Partner: Germany): Develop system specification to achieve interoperability between US and GE air defense tactical operations centers. Analyze common interoperability elements and prepare pre-design specifications.											
• 1400 Fighting Vehicle Propulsion Technology using Ceramic Materials.											
Total	9963										
B. Project Change Summary											
Previous President's Budget		FY 1995	FY 1996	FY 1997							
Adjustments to Budget Year (FY97) since		0	0	0							
FY 1996 President's Budget		0	0	9963							
Current Budget Submit/President's Budget		0	0	9963							
Change Summary Explanation:											
Funding: FY 1995: funds were included in RDTE, Defense-wide Appropriation, PE 0603790D											
FY 1996: funds were included in RDTE, Defense-wide Appropriation, PE 0603790D											
FY 1997: DOD program restructured to provide funding to the services and defense agencies for cooperative projects.											
C. Other Program Funding Summary											
RDTE, Defense-wide Appropriation		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total	
0603790D NATO Cooperative R&D	14900		7700						Compl	Cost	
D. Schedule Profile											
1	2	3	4	1	2	3	4	1	2	3	4
Combat Identification Interoperability											
SNR(A) MOU Concluded											
Complete Fabrication and Integration											
Trials and Demonstration Completed											
Initial Data Report											
Command & Control Interoperability											
MOU Amendment Concluded											
Complete Ops Concept/ Data Dictionary											
Complete Hardware/Software Installation											
Project D691											
Page 2 of 6 Pages											
Exhibit R-2 (PE 0603790A)											

550

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603790A NATO Research and Development

D691

D. Schedule Profile

FY 1997

FY 1996

FY 1995

	1	2	3	4	1	2	3	4	1	2	3	4
Complete Lab Demo/Tests & Simulations												
Adaptive Beam Forming Technology												
Project Arrangement Concluded												
Complete Algorithms/Architecture												
Complete Wideband Subarray												
Complete Preliminary Point Design												
Complete Final Point Design												

Complete Lab Demo/Tests & Simulations
Adaptive Beam Forming Technology

Project Arrangement Concluded

Complete Algorithms/Architecture

Complete Wideband Subarray

Complete Preliminary Point Design

Complete Final Point Design

CONDOR

Complete Configuration Development

Complete Systems Development

Complete Integration Tests

Complete Flight Test & Evaluation

High Technology Switch

Project Arrangement Concluded

Complete ATM Test Bed Design

Complete Hardware/Software Installation

Complete Simulation and Commo Link

Perform Test and Experimentation

Extended Air Defense

MOU Concluded

Complete Development of Interface Req.

Complete Integration Analysis

Complete Trade-off Analysis

Project D691

Page 3 of 6 Pages

Exhibit R-2 (PE 0603790A)

551

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603790A NATO Research and Development

D691

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Combat Identification Interoperability Demonstration (CIID)	0	0	3013
Command and Control Systems Interoperability (C2SI)	0	1/	2500
Adaptive Beam Forming Technology (ABFT)	0	1/	2000
Covert Night/Day Operations in Rotorcraft (CONDOR)	1/	1/	1600
High Technology Switch Development (HTSD)	1/	1/	450
Extended Air Defense Command & Control Interoperability	1/	1/	400
Total	1/	1/	9963

1/ Prior years funded in RDTE, Defense-wide Appropriation. PE 0603790D, NATO Cooperative R&D

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Hughes Training	CPIF	Jan 94	9900	9900	1/	1/	1/	1500	0	1500
Herndon, VA										
Boeing Helicopter Philadelphia, PA	CPIF	Dec 93	7500	7500	1/	1/	1/	0	900	900
McDonnell Douglas	CPIF	Nov 96	600	600	1/	1/	1/	0	600	600
Mesa, AZ										
Quantum Research Huntsville, AL	FFP	May 95	1688	1688	0	1/	1/	300	0	300
Ft Washington, PA	CPFF	Nov 95	2011	2011	0	0	1/	1200	400	1600
SRI	CPFF	Oct 95	2167	2167	0	0	1/	1300	400	1700
Menlo Park, CA										
TRW	CPAF	Mar 96	3270	3270	0	0	1/	1745	0	1745
Redondo Bch, CA										

Project D691

Page 4 of 6 Pages

Exhibit R-3 (PE 0603790A)

552

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

0603790A NATO Research and Development

PROJECT

D691

4 - Demonstration and Validation

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Madentech	CPFF	Feb 95	1245	1245	0	11	11	250	250	500
Shrewsbury, NJ	CPFF	Aug 94	3059	3059	11	11	11	1500	0	1500
Georgia Tech										
Atlanta, GA	CPFF	Aug 94	275	275	11	11	11	150	0	150
Dynetics										
Huntsville, AL	FFRDC	Mar 96	100	100	0	0	0	100	0	100
Mitre										
Boston, MA										
Support and Management Organizations										
ATCOM	MPIR							100	100	200
Ft Eustis, VA	MPIR							468	400	868
CECOM										
Ft Monmouth, NJ	MPIR							100	100	200
NASA Ames										
San Francisco, CA	MPIR							200	200	400
ICPA										
APG, MD	MPIR							100	100	200
PM ADCCS										
Huntsville, AL	MPIR							250	200	450
PM THAAD										
Huntsville, AL										
Test and Evaluation Organizations										
AMSA	MPIR							500	300	800
APG, MD										
CECOM	MPIR							200	200	400
Ft Monmouth, NJ										
ATCOM (AATD)	MPIR							0	400	400
Ft Eustis, VA										

1/ Prior years funded in RDTE, Defense-wide Appropriation. PE 0603790D, NATO Cooperative R&D

Project D691

Page 5 of 6 Pages

Exhibit R-3 (PE 0603790A)

553

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT	
4 - Demonstration and Validation	0603790A NATO Research and Development			D691	
Government Furnished Property: None					
	Total			Budget to	Total
	Prior to			Complete	Program
	FY 1995	FY 1995	FY 1996	FY 1997	
Subtotal Product Development	1/	1/	1/	8045	10595
Subtotal Support and Management	1/	1/	1/	1218	2318
Subtotal Test and Evaluation	1/	1/	1/	700	1600
Total Project	1/	1/	1/	9963	14513
1/ Prior years funded in RDTE, Defense-wide Appropriation. PE 0603790D, NATO Cooperative R&D					

Project D691

Page 6 of 6 Pages

Exhibit R-3 (PE 0603790A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation 0603801A Aviation - Advanced Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	16309	14035	8385	7657	8041	6268	6362	Continuing	Continuing
DB32 Advanced Maintenance Concepts and Equipment	5170	2306	2228	2853	2806	3265	3313	Continuing	Continuing
DB33 Cargo Handling Equipment	1343	2093	2053	2071	2581	3003	3049	Continuing	Continuing
DB45 Aircrew Integrated Systems	9796	9636	4104	2733	2654	0	0	Continuing	Continuing

Mission Description and Budget Item Justification: This PE provides advanced development aviation support of tactical programs associated with air mobility, advanced maintenance concepts and equipment, and Aircrew Integrated Systems (ACIS), formerly Aviation Life Support Equipment (ALSE). The projects in this Program Element support research efforts in advanced development phase of the acquisition strategy and are correctly placed in Budget Activity 4.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603801A Aviation - Advanced Development								DB32	
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DB32	Advanced Maintenance Concepts and Equipment	5170	2306	2228	2853	2806	3265	3313	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: This project enhances utilization of current and future aircraft by improving the efficiency of maintenance (primarily in the area of diagnostics/prognostics) and servicing operations by: replacing obsolete, insupportable ground support equipment with new and standardized multi-output equipment compatible with all Army aircraft models; developing rapid battle repair procedures and tools to speed the return of aircraft to combat ready status; and developing new equipment for aerial recovery of damaged aircraft, and validating new maintenance concepts to improve man machine interface, enhance aircraft maintenance procedures and reduce operating and support costs. Included in the project is the Intelligent Fault Locator (IFL), a program to test artificial intelligence-based troubleshooting software on an AH-64 Apache aircraft, and Digitized Aviation Logistics (DAL) elements to include a Portable Maintenance Aid (PMA), database management software, on-board diagnostics, digital source collector, health/usage monitoring system, trending analysis, and support infrastructure.</p> <p>Acquisition Strategy: This project is an aggregate of advanced maintenance concepts-related projects. While the detailed acquisition strategy varies from project to project, the general strategy for each individual project is to complete the development effort through Government test (developmental and operational). Program documentation for milestone decision is prepared, as appropriate, concurrently with the development effort in preparation for program transition to the organization responsible for production and fielding.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 230 Conducted development and operational test of the Unit Maintenance Aerial Recover Kit (UMARK) 4323 Continued fabrication and integration of Advanced Boresight Equipment (ABE) pre-production units; and initiate an Integrated Logistics System (ILS) program in preparation for a milestone III IPR 617 Automated the NDI/NDT inspection methods and repair procedures through application knowledge based software <p>Total 5170</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 114 Demonstrate knowledge base automated NDI/NDT inspection and repair procedures for composite components 1425 Initiate a Dem/Val program for a comprehensive on-board diagnostic system interfaced with an automated maintenance and logistics system 547 Complete the Dem/Val phase of the ABE Program 153 Initiate development of the Portable Maintenance Aid (PMA) for hand free interface with maintenance procedures and instructions 12 Develop/demonstrate environmentally sensitive options for aircraft maintenance 6 Revised economic assumption not available for execution 49 SBIR/STTR <p>Total 2306</p>											

Project DB32

Page 2 of 14 Pages

Exhibit R-2 (PE 0603801A)

556

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603801A Aviation - Advanced Development

DB32

FY 1997 Planned Program:

- 300 Initiate development of a field repair capability for low observable components
- 1317 Complete detailed design of the on-board diagnostics system and define the interface with the automated maintenance and logistics system
- 290 Assemble the advanced Portable Maintenance Aid and initiate a field demonstration
- 321 Demonstrate environmentally friendly alternatives for aircraft maintenance problems
- Total 2228

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	4440	2371	2303
Appropriated Amount (FY 1995)	4349		
Adjustments to FY 1995	+821		
Appropriated Amount (FY 1996)		2329	
Adjustments to FY 1996		-23	
Adjustment to Budget year (FY 1997) since FY 1996			-75
President's Budget			
Current President's Budget Submit	5170	2306	2228

Change Summary Explanation:

Funding: FY95 increase (+821) reflects reprogramming action from DB33.

FY96 adjusted (-23) for revised economic assumptions.

FY97 adjusted (-75) for revised economic assumptions.

Schedule: None

Technical: None

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl Cont	Total Cost Cont
RDTE,A Budget Activity 2 PE 0602211 Project	16358	15459	23190	24994	27305	26643	29084		
A47A Aeronautical and Aircraft Weapons Tech									

Project DB32

Page 3 of 14 Pages

Exhibit R-2 (PE 0603801A)

557

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE										PROJECT
4 - Demonstration and Validation		0603801A Aviation - Advanced Development										DB32
<u>D. Schedule Profile</u>		FY 1995		FY 1996		FY 1997						
1	2	3	4	1	2	3	4	1	2	3	4	
			X		X		X					
Conduct development and operational test of the UMARK												
Complete the Dem/Val Phase of the ABE program							X					
Complete detailed design of the on-board diagnostics system and define the interface with the automated maintenance and logistics system										X		

Project DB32

Page 4 of 14 Pages

Exhibit R-2 (PE 0603801A)

558

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603801A Aviation - Advanced Development

DB32

A. Project Cost Breakdown

Primary Hardware Development	FY 1995	FY 1996	FY 1997
Software Development	565	700	370
Systems Engineering	420	213	555
Integrated Logistics Support	264	30	425
DT/OT	2830	126	
Program Management	296	343	
Research Personnel	170	150	167
Miscellaneous	500	594	596
Total:	125	150	115
	5170	2306	2228

B. Budget Acquisition History and Planning Information: Not required

Project DB32

Page 5 of 14 Pages

Exhibit R-3 (PE 0603801A)

559

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603801A Aviation - Advanced Development								DB33	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DB33	Cargo Handling Equipment	1343	2093	2053	2071	2581	3003	3049	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: This project develops equipment and operational improvements for loading and off-loading helicopter cargo in all-weather, around the clock combat scenarios.</p> <p>Acquisition Strategy: This program is an aggregate of advanced cargo handling concepts-related projects. While the detailed acquisition strategy varies from project to project, the general strategy for each individual project is to complete the development effort through Government test (developmental and operational) or system level demonstration. Programs are executed in coordination with the gaining organization and the user.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 346 Completed design, fabrication and bench test of a pre-production prototype of the 30mm Ammo Loader compatible with weight goals for both the AH-64A and C/D aircraft 997 Completed the detailed design and initiated fabrication of advanced internal and external cargo handling systems <p>Total 1343</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 383 Initiate definition of a high-mobility transport system for aircraft maintenance units 1658 Complete fabrication and installation of advanced internal and external cargo handling systems and demonstrate their impact on cargo aircraft productivity 6 Revised economic assumption not available for execution 46 SBIR/STTR <p>Total 2093</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 1171 Complete the demonstration of advanced internal and external cargo handling systems 386 Initiate the demonstration of a cargo movement system for heavy (95th percentile) loads 496 Continue the aircraft maintenance unit mobility system definition <p>Total 2053</p>											

Project DB33

Page 6 of 14 Pages

Exhibit R-2 (PE 0603801A)

560

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603801A Aviation - Advanced Development

DB33

B. Project Change Summary

	FY 1995	FY 1996	FY 1998
Previous President's Budget	2210	2152	2125
Appropriated Amount (FY 1995)	2164		
Adjustments to FY 1995	-821		
Appropriated Amount (FY 1996)		2114	
Adjustments to FY 1996		-21	
Adjustment to Budget Year (FY 1997) since FY 1996			-72
President's Budget			
Current President's Budget Submit	1343	2093	2053

Change Summary Explanation:

Funding: FY95 decrease (-821) reflects reprogramming action to DB32.

FY96 adjustment (-21) reflects revised economic assumptions.

FY97 adjustment (-72) reflects revised economic assumptions.

C. Other Program Funding Summary

RDTE,A Budget Activity 2 PE 0602211 Project
A47A Aeronautical & Aircraft Weapons Tech.

Total
Cost
ContTo
Compl
Cont

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
	16358	15459	23190	24994	27305	26643	29084

D. Schedule Profile

FY 1995

FY 1996

FY 1997

1

2

3

4

1

2

3

4

1

2

3

4

Complete design, fabrication and bench test of a pre-production prototype of the 30mm Ammo Loader compatible with weight goals for both the AH-64A and C/D aircraft

Complete the demonstration of advanced internal and external cargo handling systems

X

Project DB33

Page 7 of 14 Pages

Exhibit R-2 (PE 0603801A)

561

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	PROJECT
BUDGET ACTIVITY		DATE	PROJECT
4 - Demonstration and Validation		0603801A Aviation - Advanced Development	DB33
PE NUMBER AND TITLE			
A. Project Cost Breakdown		FY 1995	FY 1996
Primary Hardware Development		1343	1000
Systems Engineering		0	368
DT			
Program Management		0	149
Research Personnel		0	545
Miscellaneous		0	31
Total		1343	2093
B. Budget Acquisition History and Planning Information: Not required		FY 1997	
			770
			230
			300
			149
			545
			59
			2053

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603801A Aviation - Advanced Development

DB45

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DB45 Aircrew Integrated Systems	9796	9636	4104	2733	2654	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project DB45 - Aircrew Integrated Systems (ACIS) - formerly Aviation Life Support Equipment (ALSE) Advanced Development: This project provides advanced development for those systems and items of equipment which are unique and necessary to the sustainment and enhanced survivability of Army aircrews and passengers on the future integrated battlefield and during related training activities. Advanced development programs will focus on the development and evaluation of emerging technologies and the adaptation of commercial and nondevelopmental items (NDI) to military requirements. The Joint Cockpit Air Bag System (JCABS) effort will evaluate a variety of supplemental restraint system approaches to improve crew and passenger crash survivability and thereby reduce potential injuries/casualties on UH-60 and SH-60 aircraft; complementing the AH-64 Cockpit Air Bags System (CABS) Engineering, Manufacturing, and Development (EMD) program, with follow-on adaptation to the OH-58D and CH-47D aircraft. The Air Warrior (AW) program will provide the aircrew with a systems approach to chemical and biological (CB) protection, noise protection, microclimatic conditioning, crash and post-crash survivability, concealment and environmental protection, ballistic protection, night vision capability, heads-up displays, nuclear flash protection, directed energy eye protection, and flame/heat protection. The AW design will improve overall aircrew mission performance, aircrew comfort, aircrew and aircrew station interface, safety, and survivability. The Aircrew Integrated Common Helmet (AICH) program is the major information management, control, and aircraft interface for the Air Warrior system and incorporates Comanche electronics as an Aircraft Retained Unit (ARU) utilizing new flat panel displays and the HGU-56/P as the Pilot Retained Unit (PRU). The magnetic head tracker technology is being developed as an ARU/PRU for Longbow Apache. Active Noise Reduction technology is being developed in concert with the AICH program. None of these efforts duplicate any aircraft program efforts. Both joint and service independent efforts will be pursued under the scope of this project.

Acquisition Strategy: DB45 - Production of the Aircrew Integrated Common Helmet for the Comanche program will be competed among the helmet electronic manufacturers. A development contract will be awarded in FY 97 for demonstration/validation of the Air Warrior system.

FY 1995 Accomplishments:

- 891 Continued fabrication and evaluation of the Agile Laser Eye Protection (LEP) (Joint Service)
- 200 Completed Inflatable Body and Head Restraint System (IBAHRS) (Joint Service/Completes Army IBAHRS RDTE funding)
- 5350 Conducted Air Warrior advanced development and technology trade studies (Joint Interest)
- 1595 Continued JCABS component development, contractor development tests, and completed Preliminary Component Design (Joint Service)
- 1760 Initiated AICH contractor design and testing of image intensification, miniature flat panel displays, and magnetic head tracker (potential Joint Service)
- Total 9796

Project DB45

Page 9 of 14 Pages

Exhibit R-2 (PE 0603801A)

563

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603801A Aviation - Advanced Development

DB45

FY 1996 Planned Program:

• 800	Continue JCABS development contractor component, environmental, and dynamic system tests required prior to Milestone II (Joint Service)
• 1624	Continue Air Warrior trade studies, prepare developmental contract Request for Proposal (RFP), and integrate AICH effort (Joint Interest)
• 6427	Continue AICH contractor prototype development for laboratory and flight test of image intensification, miniature flat panel displays, and magnetic head tracker (potential Joint Service)
• 550	Initiate NBC Advanced Initiatives Advanced Development for air vehicle and aircraft
• 27	Revised Economic Assumptions amount not available for execution
• 208	FY 96 SBIR/STTR reductions
Total	9636

FY 1997 Planned Program:

• 2080	Award Air Warrior advanced development contract and continue evaluation of near-term fixes and technology voids (Joint Interest)
• 1110	Continue AICH development and evaluate its integration of AICH optical display technology into the Air Warrior program
• 914	Continue NBC Advanced Initiatives advanced development
Total	4104

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	4628	3907	4238
Appropriated Amount (FY 1995)	9796		
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		9734	
Adjustments to FY 1996		-98	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-134
Current Budget Estimate Submission	9796	9636	4104

Change Summary Explanation:

Funding: FY 96 reflects revised economic assumptions (-98).
FY 97 reflects revised economic assumptions (-134).

Project DB45

Page 10 of 14 Pages

Exhibit R-2 (PE 0603801A)

564

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603801A Aviation - Advanced Development

DB45

C. Other Program Funding Summary

RDTE, A Budget Activity 5 PE 0604801A Project
 DC45 (Aircrew Integrated Systems - Engineering,
 Manufacturing, Development)
 Aircraft Procurement, Army (APA) SSN AZ3110
 Aircrew Integrated Systems

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total
								Compl	Cost
								Cont	Cont
	4614	5002	5518	7596	6910	2420	2403		
	9059	9334	6292	12782	10378	9361	9288		

D. Schedule Profile

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
1	2	3	4	1	2	3	4

Air Warrior

Materiel Need Statement (MNS)

Milestone 0

Trade Studies and evaluations

Develop measures of performance and effectiveness

Prepared Draft Request for Proposal

(RFP) and trade studies received

Release Draft Request for Proposal (RFP) for industry response

Preproposal conference

Final advanced development RFP released to industry

Source Selection

Combined Milestone I and II decision

Award advanced development contract

Post Award Conference and Functional

Analysis

Preliminary Design Review

Aircrew Integrated Common Helmet

Award advanced development contract

Evaluate image intensification and optical display effort

Project DB45

Page 11 of 14 Pages

Exhibit R-2 (PE 0603801A)

565

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603801A Aviation - Advanced Development

PROJECT

DB45

	<u>D. Schedule Profile</u>					
	FY 1995			FY 1996		
	1	2	3	4	1	2
Exercise advanced development /design of optical display prototypes						
Continue advanced development of most promising image intensification and optical display technologies						X
Joint Cockpit Air Bags System						
Continue development contractor component, environmental, and dynamic system tests	X*					
Milestone II						
Nuclear, Biological, Chemical, (NBC) Advanced Initiatives						
Initiate NBC Initiatives development for air vehicle and aircrew						X
Trade Studies and technology investigation						

Project DB45

Page 12 of 14 Pages

Exhibit R-2 (PE 0603801A)

566

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE									
4 - Demonstration and Validation		0603801A Aviation - Advanced Development									DB45
A. Project Cost Breakdown											
Product Development Organizations		FY 1995	FY 1996	FY 1997							
		4704	7161	2390							
Support and Management Organizations		4814	1960	1170							
Test and Evaluation Organizations		278	515	544							
Total		9796	9636	4104							
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program	
Product Development Organizations											
IBAHRS, Simula, Phoenix, AZ					6712	0	0	0	0	6712	
JCABS, Simula, Phoenix, AZ	SS-CPFF	May 1994			1430	1199	554	0	0	3183	
AICH, Gentex, Carbondale, PA	SS-CPFF	July 1995			2000	1134	6427	658	0	10219	
Agile LEP, Naval Air Warfare Center, Warminster, PA	SS-CPFF	Feb 1995	6053	6053	5348	705	0	0	0	6053	
Air Warrior, various simulation facilities	C-CPFF	June 1995	1679	1679	173	950	30	100	426	1679	
Air Warrior, AD unknown	C-CPFF	March 1997						1532	Cont	Cont	
Miscellaneous	MIPR					716	150	100	Cont	Cont	
Project DB45											

Project DB45

Page 13 of 14 Pages

567

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT	
BUDGET ACTIVITY										PE NUMBER AND TITLE			
4 - Demonstration and Validation										0603801A Aviation - Advanced Development			DB45
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program			
Support and Management Organizations													
CAS, Huntsville, AL	C-CPFF	Dec 1993		EAC	332	324	330	200	Cont	Cont			
Camber, Huntsville, AL	C-CPFF	Dec 1993		EAC	243	494	331	200	Cont	Cont			
ATCOM, St. Louis, MO	MIPR					1411	500	500	Cont	Cont			
AFDD, Moffett Field, CA	MIPR	Nov 1993			868	720	0	0	Cont	Cont			
USAAARL, FT. Rucker, AL	MIPR	May 1995				780	224	100	Cont	Cont			
AATD, Ft. Rucker, AL	MIPR					640	240	100	Cont	Cont			
Natick R&D Center, Natick, MA	MIPR					445	100	70	Cont	Cont			
Revised Economic Assumptions/SBIR/STTR													
Test and Evaluation Organizations													
TECOM/ATTC, Ft. Rucker, AL	MIPR					278	515	544	Cont	Cont			
Government Furnished Property: Not Applicable													
Subtotal Product Development													
Subtotal Support and Management													
Subtotal Test and Evaluation													
Total Project DB45													
Project DB45													
Exhibit R-3 (PE 0603801A)													

Project DB45

Page 14 of 14 Pages

Exhibit R-3 (PE 0603801A)

568

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603802A Weapons and Munitions - Advanced Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	1220	973	0	0	0	0	0	0	2945
XXB MK-19 IMPROVEMENTS	1220	0	0	0	0	0	0	0	1972
DAS2 SMALL ARMS IMPROVEMENTS	0	973	0	0	0	0	0	0	973

Mission Description and Budget Item Justification: This Program Element (PE) supports advanced development of weapons and munitions. Two projects are included in the PE; both are related to small arms. The MK 19-3 Grenade Machine Gun delivers accurate, lethal firepower against personnel and lightly armored targets at ranges out to 2,200m. Improvements to this weapon are oriented on firing platform stability and training effectiveness. A new project, small arms improvements, aims to achieve advances in small arms target acquisition, fire control, lethality, training effectiveness, mobility, and reliability. Both projects in this PE focus on efforts associated with advanced technology development. They demonstrate general military utility, to include demonstration validation, and are correctly placed in budget activity 4.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603802A Weapons and Munitions - Advanced

Development

PROJECT

XXXB

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
XXXB MK-19 IMPROVEMENTS	1220	0	0	0	0	0	0	0	1972

A. Mission Description and Budget Item Justification: This project focuses on improvements to the MK19-3 Automatic Grenade Launcher. In addition to investigating soft mounts, two system-specific training devices: a Gunnery Trainer for the MK19 and a Tactical Engagement Simulator for the MK19-3 are being developed. The Gunnery Trainer is a video style classroom trainer. It is an adaptation of an existing training device that will provide basic gunnery skills in engaging single and multiple targets with use of the Traverse and Elevation (T&E) Mechanism and free gun engagement. This device will replicate with high accuracy and resolution the aiming, firing, and fire adjustment of the actual weapon to include hits/misses, trajectory, and flight characteristics of the 40mm ammunition. The Tactical Engagement Simulator is an adaptation of the Multiple Integrated Laser Engagement System (MILES), another existing training device. This device will be used as a means to evaluate the performance of the weapon system and crews in force-on-force training exercises. The Soft Mount is designed to provide a firing platform with improved stability. This effort will result in improved accuracy, faster reaction times, unlimited traverse, and a reduction in training costs through reduced ammunition consumption and barrel wear. This project focuses on efforts associated with advanced technology development. It demonstrates general military utility, to include demonstration and validation, of tactical engagement simulation and is correctly placed in budget activity 4.

FY 1995 Accomplishments:

- 92 Conducted Trade-off Determination for Tactical Engagement Simulator (TES)
- 127 Determined Best Technical Approach for TES
- 150 Issued preliminary Request for Proposal for TES
- 177 Developed prototype for TES
- 74 Conduct Milestone I/III for TES
- 106 Developed concept formulation/acquisition strategy for Soft Mount
- 76 Conducted market survey/purchase of commercially available Soft Mounts
- 43 Conducted confidence tests for Soft Mount
- 375 Generated performance specification for Soft Mount
- Total 1220

FY 1996 Planned Accomplishments: No planned program

FY 1997 Planned Accomplishments: No planned program

Project XXXB

Page 2 of 7 Pages

Exhibit R-2 (PE 0603802A)

570

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

XXXB

0603802A Weapons and Munitions - Advanced

4 - Demonstration and Validation

Development

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Comp	Total Cost
B. Project Change Summary									
Previous President's Budget (FY 1996)	1246	0	0						
Appropriated Amount (FY 1996)	1220	0	0						
Adjustment to FY 1996	0	0	0						
Appropriated Amount (FY 1996)	0	0	0						
Adjustments to FY 1996	0	0	0						
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget	0	0	0						
Current President's Budget Submit	1220	0	0						
C. Other Program Funding Summary									
WTCV, A									
GL3200 Items Less than \$2.0M	956	0	1051	0	0	0	0	0	2007
D. Schedule Profile									
Conducted Trade-Off Determination for Tactical Engagement Simulator (TES)	FY 1995		FY 1996		FY 1997				
Determined Best Technical Approach for TES	1	2	3	4	1	2	3	4	
Issued preliminary Request for Proposal for TES	X*								
Developed prototype for TES									
Conduct Milestone I/III for TES									
Developed concept formulation/acquisition strategy for Soft Mount									
Conducted market survey for Soft Mount									
Small Purchases of Soft Mount									
Conducted confidence test for Soft Mount									
Generated performance specification for Soft Mount									
*Milestone Completed									

Exhibit R-2 (PE 0603802A)

Page 3 of 7 Pages

571

UNCLASSIFIED

Project XXXB

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE										
4 - Demonstration and Validation		0603802A Weapons and Munitions - Advanced Development										
A. Project Cost Breakdown												
Other Government Agency Support		FY 1995	FY 1996	FY 1997								
		1084	0	0								
Program Management Support		8	0	0								
Contract Support		128	0	0								
Total		1220	0	0								
B. Budget Acquisition History and Planning Information												
Performing Organizations												
Contractor or	Contract											
Government	Method/Type											
Performing	or Funding											
Activity	Vehicle											
	Award or											
	Obligation											
	Date											
Product Development Organizations												
STRICOM	MIPR	Jan 95	323	323	0	0						
Orlando, FL												
Support and Management Organizations												
PM Small Arms	MIPR	Mult/95	769	769	0	0						
Picatinny Ars, NJ												
Test and Evaluation Organizations												
TACOM	Small	Mult/95	128	128	0	0						
Picatinny Ars, NJ	Purchase											
Government Furnished Property: N/A												
Subtotal Product Development			732	323	0	0						
Subtotal Support and Management			20	769	0	0						
Subtotal Test and Evaluation			752	128	0	0						
Total Project				1220	0	0						
Project XXXB		Exhibit R-3 (PE 0603802A)										

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603802A Weapons and Munitions - Advanced Development

PROJECT

DAS2

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DAS2 SMALL ARMS IMPROVEMENTS	0	973	0	0	0	0	0	0	973

A. Mission Description and Budget Item Justification: This project aims to achieve improvements in target acquisition, target effect, lethality, training effectiveness, durability, and reliability, availability and maintainability (RAM) for small arms weapons systems. Current small arms systems include a variety of personal defense weapons (.38 cal, .45 cal; 9mm), individual weapons (5.56mm - 7.62mm), and crew served weapons (5.56mm - 40mm). Also included is related equipment such as fire control, training devices, and ammunition. This project will begin development of a small arms common module fire control system (SACMFCS) providing an integrated day/night fire control system with a laser range finder for use on the MK19-3 Grenade Machine Gun, M2 .50 cal Heavy Machine Gun, and 7.62mm Medium Machine Gun. The SACMFCS is a continuation of an advanced development effort conducted by the Joint Service Small Arms Program. This project focuses on efforts associated with advanced technology development. It demonstrates general military utility, to include demonstration and validation, of a small arms fire control system and is correctly placed in budget activity 4.

FY 1995 Accomplishments: No planned program

FY 1996 Planned Program:

- 75 Conduct market survey/ Trade-off Determination
- 248 Develop system performance specification
- 75 Prepare and staff Purchase Description
- 75 Prepare procurement package input for ATD hardware
- 350 Award contract for ATD hardware
- 122 Conduct ATD and develop reports
- 22 SBIR/STTR
- 6 Revised economic assumption not available for execution
- Total 973

FY 1997 Planned Program: No planned program

Project DAS2

Page 5 of 7 Pages

Exhibit R-2 (PE 0603802A)

573

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996	PROJECT	
BUDGET ACTIVITY	PE NUMBER AND TITLE	FY 1995	FY 1996	FY 1997	
4 - Demonstration and Validation					DAS2
0603802A Weapons and Munitions - Advanced Development					
B. Project Change Summary					
Previous President's Budget (FY 1995)		0	0	0	
Appropriated Amount (FY 1995)		0	0	0	
Adjustment to FY 1995		0	0	0	
Appropriated Amount (FY 1996)		0	983	0	
Adjustments to Appropriated Value		0	- 10	0	
Current Budget Submit/President's Budget		0	973	0	
Change Summary Explanation:					
Funding: Adjustment to FY 96 is due to revised economic assumptions.					
C. Other Program Funding Summary None					
D. Schedule Profile					
		FY 1995	FY 1996	FY 1997	
1	2	3	4	1	2
1	2	3	4	1	2
Conduct market survey /Trade-off				4	3
Determination				X	4
Develop system performance specification				X	
Prepare and staff Purchase Description				X	
Prepare procurement package input for ATD hardware				X	
Award Contract for ATD Hardware				X	
Conduct ATD and develop reports					X
Project DAS2					
Page 6 of 7 Pages					
Exhibit R-2 (PE 0603802A)					

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603802A Weapons and Munitions - Advanced Development

DAS2

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Other Government Agency Support	0	523	0
Program Management Support	0	100	0
Contract Support	0	350	0
Total	0	973	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
ARDEC	MIPR	Mult	373	373	0	0	373	0	0	373
Support and Management Organizations										
PM Small Arms	Allot	Mult	100	100	0	0	100	0	0	100
TACOM	DC	3Q96	350	350	0	0	350	0	0	350
Picatinny Arsenal										
Test and Evaluation Organizations										
TECOM	MIPR	Mult	35	35	0	0	35	0	0	35
TEXCOM	MIPR	Mult	40	40	0	0	40	0	0	40
ARDEC	MIPR	Mult	75	75	0	0	75	0	0	75
Government Furnished Property	None									
Subtotal Product Development					0	0	373	0	0	373
Subtotal Support and Management					0	0	450	0	0	450
Subtotal Test and Evaluation					0	0	150	0	0	150
Total Project					0	0	973	0	0	973

Project DAS2

Page 7 of 7 Pages

Exhibit R-3 (PE 0603802A)

575

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE		March 1996		
BUDGET ACTIVITY		PE NUMBER AND TITLE									
4 - Demonstration and Validation		0603804A Logistics and Engineering Equipment - Advanced Development									
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		14399	7224	7592	6840	5491	5743	6077	Continuing	Continuing	
DGO1	Combat Engineer Equipment Advanced Development	9106	0	0	0	0	0	0	0	12200	
DG10	Advanced Tactical Power Sources	224	130	132	130	172	196	219	Continuing	Continuing	
DG11	Advanced Electrical Energy Concepts Advanced Development	744	221	217	215	212	290	288	Continuing	Continuing	
DG14	Logistics Support Equipment Advanced Development	485	95	88	88	87	96	95	Continuing	Continuing	
DK39	General Support Equipment Advanced Development	835	959	869	1449	1428	1720	1871	Continuing	Continuing	
DK41	POL Distribution Equipment Advanced Development	648	885	891	912	876	958	951	Continuing	Continuing	
D266	Airdrop Equipment Advanced Development	1197	1452	1444	1452	1452	1433	1611	Continuing	Continuing	
D428	Tactical Rigidwall Shelter Advanced Development	789	3482	3951	2594	926	1050	1042	Continuing	Continuing	
D526	Marine Orientation Log Equipment Advanced Development	371	0	0	0	338	0	0	Continuing	Continuing	
Mission Description and Budget Item Justification: This program supports demonstration and validation of new and improved technologies for combat support and combat service support equipment essential to sustaining combat operations. Advancements in airdrop, rigid wall shelters, marine craft, bridging, electric power generators and batteries, potable water, environmental control and petroleum equipment are necessary to improve safety and increase the tactical mobility, operational capability, lethality and survivability on the digital battlefield of the first to fight; and to provide for greater sustainment of all combat forces while reducing the logistics support											

Page 1 of 35 Pages

Exhibit R-2 (PE 0603804A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE		
4 - Demonstration and Validation	0603804A Logistics and Engineering Equipment - Advanced Development		
<p>burden. The projects in this Program Element support research efforts in the Demonstration and Validation phase of the acquisition strategies and are therefore correctly placed in Budget Activity 4.</p>			
		Exhibit R-2 (PE 0603804A)	

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996															
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT																
4 - Demonstration and Validation		0603804A Logistics and Engineering Equipment - Advanced Development								DGO1																
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost																
DGO1	Combat Engineer Equipment Advanced Development	9106	0	0	0	0	0	0	0	12200																
<p>A. Mission Description and Budget Item Justification: This program supports advanced development of new and improved technologies for combat engineer equipment such as bridging and construction equipment.</p> <p>Acquisition Strategy: Complete advanced development and transition to engineering development.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 978 Completed validation of Laser Vibration Sensor System (LVSS) sensor and structural models. • 2940 Completed final design and fabricated LVSS. • 3918 Evaluated Medium Assault Bridge. • 270 Procured Palletized Load System (PLS) trailers for preliminary testing. • 450 Procured PLS trucks for preliminary testing. • 550 Prepared for and conducted Pre-Milestone II review activities. <p>Total 9106</p> <p>FY 1996 Planned Program: None</p> <p>FY 1997 Planned Program: None</p> <p>B. Project Change Summary</p> <table> <tr> <td>Previous President's Budget (FY 1996)</td> <td></td> </tr> <tr> <td>Appropriated Amount (FY 1995)</td> <td></td> </tr> <tr> <td>Adjustment to FY 1995</td> <td></td> </tr> <tr> <td>Appropriated Amount (FY 1996)</td> <td></td> </tr> <tr> <td>Adjustment to FY 1996</td> <td></td> </tr> <tr> <td>Adjustments to Budget Year (FY 1997) since FY 1996</td> <td></td> </tr> <tr> <td>President's Budget</td> <td></td> </tr> <tr> <td>Current President's Budget Submit</td> <td></td> </tr> </table>											Previous President's Budget (FY 1996)		Appropriated Amount (FY 1995)		Adjustment to FY 1995		Appropriated Amount (FY 1996)		Adjustment to FY 1996		Adjustments to Budget Year (FY 1997) since FY 1996		President's Budget		Current President's Budget Submit	
Previous President's Budget (FY 1996)																										
Appropriated Amount (FY 1995)																										
Adjustment to FY 1995																										
Appropriated Amount (FY 1996)																										
Adjustment to FY 1996																										
Adjustments to Budget Year (FY 1997) since FY 1996																										
President's Budget																										
Current President's Budget Submit																										

Exhibit R-2 (PE 0603804A)

Page 3 of 35 Pages

578

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

DGO1

**0603804A Logistics and Engineering Equipment -
Advanced Development**

C. Other Program Funding Summary

RDTE, 0604804.DH01, Combat Engineer
Equipment Engineering Development
OPA3, G82400, Heavy Dry Support Bridge

D. Schedule Profile

LVSS sensor and structure models
LVSS final design and fabrication
Demonstrated and tested MLC 96

capability for HDSB

Initiated documentation for HDSB MS II

Conduct HDSB MS II review

Evaluated Medium Assault Bridge

* Completed Milestones

<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	To Compl Cont	Total Cost Cont
4122	9425	9635	7737	4614	96	95		
								31657
					9657	22000		

	FY 1995	FY 1996	FY 1997
1	2	1	2
2	3	2	3
3	4	3	4
4	X*	X	X
	X*		
	X*		
	X*		
	X*		

Project DGO1

Page 4 of 35 Pages

579

Exhibit R-2 (PE 0603804A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				
4 - Demonstration and Validation	0603804A Logistics and Engineering Equipment - Advanced Development				March 1996
A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997		
Hardware Development	3764				
Evaluate Medium Assault Bridge	3918				
Test and Evaluation	328				
Government Engineering and Support	650				
Government Program Support	250				
Miscellaneous	196				
Total	9106				
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Government	Method/Type	Award or Obligation	Performing Activity	Total Prior to FY 1995	FY 1995
Performing Activity	Vehicle	Date	EAC	FY 1996	FY 1997
Product Development Organizations					
TARDEC	In-House	Various		2000	4591
Contractor TBD	CPFF	Mar 96		1000	3500
Support and Management Organizations: None					
Test and Evaluation Organizations: None					
Miscellaneous					
TECOM	MIPR	Jul 95			598
ARL	MIPR	Jan 94	94		150
BRTRC, Inc	CPFF	Various			98
TACOM	MIPR	Various			169
Government Furnished Property: None					
				Budget to Complete	Total Program
					6591
					4500
Project DGO1				Exhibit R-3 (PE 0603804A)	

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT	
4 - Demonstration and Validation	0603804A Logistics and Engineering Equipment - Advanced Development			DGO1	
	Total			Budget to	Total
	Prior to	FY 1995	FY 1996	Complete	Program
	FY 1995	3000	8091	11091	11091
Subtotal Product Development					
Subtotal Support and Management					
Subtotal Test and Evaluation		94	1015		1109
Subtotal Miscellaneous		3094	9106		12200
Total Project					

Exhibit R-3 (PE 0603804A)

Page 6 of 35 Pages

Project DGO1

581

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603804A Logistics and Engineering Equipment - Advanced Development								DG10	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DG10	Advanced Tactical Power Sources	224	130	132	130	172	196	219	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification Develop advanced tactical power sources to improve soldier mobility, sustainability and survivability. This is the only project that bridges the gap between tech base and full scale production of new higher energy density, lower cost, all-weather batteries/energy conversion systems to satisfy the unique tactical and logistical requirements of portable electronic battlefield equipment. This effort also includes state of charge measuring and indicating circuitry as well as safety protection circuitry. Superior battery charging and analyzing equipment required to meet unique requirements are also included.</p> <p>Acquisition Strategy: Transition to Production</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 80 Completed prototype throw away pouch battery for Project Manager, Soldier. 94 Developed second generation Smart Battery for on-line indication of battery life status. 50 Developed safe prototype lithium rechargeable battery for communications and Special Operation Forces. <p>Total 224</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 40 Develop an improved rechargeable battery and charger based on the lithium ion battery chemistry for use in the Single Channel Ground and Airborne Radio System (SINCGARS). 40 Develop techniques for reducing battery related disposal costs. 50 Develop a vehicular mounted battery charging station. 2 SBIR/STTR <p>Total 130</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 30 Conduct field test and evaluation of next generation of primary lithium based batteries. 60 Begin development of high power battery chemistry with no toxic/hazardous materials. 42 Develop High Energy/High Power throw away battery for Force XXI Soldier. <p>Total 132</p>											

Exhibit R-2 (PE 0603804A)

Page 7 of 35 Pages

582

UNCLASSIFIED

Project DG10

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
DG10

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -
Advanced DevelopmentB. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment FY 1995

Appropriated Amount (FY 1996)

Adjustment FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current President's Budget Submit

FY 1995

230

225

-1

FY 1996

135

FY 1997

133

132

-2

-1

132

C. Other Program Funding Summary: NoneD. Schedule Profile

1

FY 1995

2

3

X*

4

1

FY 1996

2

3

FY 1997

2

3

4

Prototyped disposable Pouch Battery
 Developed Second Gen. Smart Battery
 Developed Safe Lithium Rechargeable
 Battery

Develop Rechargeable Battery &

Recharger for SINGGARS

Investigate reduction of battery related
disposal costsDevelop charging station for vehicular
batteries

Field test and evaluation of next

generation Lithium batteries

Develop High Energy/High Power battery
for Force XXI Soldier

* Completed Milestones

Project DG10

Page 8 of 35 Pages

Exhibit R-2 (PE 0603804A)

583

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE	FY 1995	FY 1996	FY 1997
4 - Demonstration and Validation				
0603804A Logistics and Engineering Equipment - Advanced Development				
A. Project Cost Breakdown				
Hardware Development		224	130	102
Test and Evaluation				30
Total		224	130	132
B. Budget Acquisition History and Planning Information: None				

Project DG10

Page 9 of 35 Pages

Exhibit R-3 (PE 0603804A)

Exhibit R-3 (PE 0603804A)

584

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -
Advanced Development

DG11

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DG11 Advanced Electrical Energy Concepts Advanced Development	744	221	217	215	212	290	288	Continuing	Continuing

A. Mission Description and Budget Item Justification: Provides advanced development for electrical energy devices to improve soldier mobility, readiness and survivability. This project supports initiatives which will lead to tactical electric power procurements in diesel powered generators and power units/power plants rated at 3-200 kilowatts (kW) with higher efficiency, lighter weight, easier maintainability and higher reliability.

Acquisition Strategy: Complete advanced development and transition to engineering development.

FY 1995 Accomplishments:

- 344 Completed evaluation of commercial variable speed constant frequency technology in a 3kW engine generator.
- 125 Initiated evaluation of commercial digital displays, controls, and diagnostics in 60kW engine generators.
- 275 Initiated testing of lightweight 5kW, 10kW and 15kW generator sets.
- Total 744

FY 1996 Planned Program:

- 122 Complete evaluation of commercial digital displays, controls and diagnostics in 60kW engine generators.
- 95 Initiate evaluation permanent magnet generators with associated electronics.
- 3 SBIR/STTR
- 1 Revised Economic Assumption not available for execution
- Total 221

FY 1997 Planned Program:

- 217 Evaluate digital display controls and diagnostics over the family of generator sets.
- Total 217

Project DG11

Page 10 of 35 Pages

Exhibit R-2 (PE 0603804A)

585

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE						DATE	PROJECT
4 - Demonstration and Validation		0603804A Logistics and Engineering Equipment - Advanced Development						March 1996	DG11
B. Project Change Summary		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total
Previous President's Budget (FY 1996)		812	227	223					Cost
Appropriated Amount (FY 1995)		795							Cont
Adjustment to FY 1995		-51							
Appropriated Amount (FY 1996)			223						
Adjustment to FY 1996			-2						
Adjustments to Budget Year (FY 1997) since FY 1996				-6					
President's Budget									
Current President's Budget Submit		744	221	217					
C. Other Program Funding Summary		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To
RDTE, 0604804A.D194, Engine Driven		1943	812	2230	269	286	702	704	Compl
Generators Engineering Development									Cont
OPA3, MA9800 Generators and Associated Equipment		25842	13332	13187	15165	87244	115040	99705	Cont
D. Schedule Profile		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	
1		2	3	4	1	2	3	4	
Demonstrated and tested new lightweight		X*							
5kW, 10kW, and 15kW generators sets									
Tested variable speed constant frequency			X*						
components in generators sets									
Evaluate digital display, controls and					X				
diagnostics in 60kW set									
Test commercial state-of-the-art									
technologies for insertion to FY 99 buy							X		
* Completed Milestones									
Project DG11		Page 11 of 35 Pages						Exhibit R-2 (PE 0603804A)	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

DG11

0603804A Logistics and Engineering Equipment -

Advanced Development

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Hardware Development	105		
Test and Evaluation	394	104	94
Government Engineering and Support	95	50	73
Government Program Support	75	42	25
Miscellaneous	75	25	25
Total	744	221	217

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Method/Type

Award or

Obligation

Date

Vehicle

Performing

Activity

EAC

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

Project

Office

EAC

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

200

FY 1995

FY 1996

FY 1997

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

217

Budget to

Complete

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Total

Program

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Project DG11

Page 12 of 35 Pages

Exhibit R-3 (PE 0603804A)

587

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603804A Logistics and Engineering Equipment - Advanced Development								DG14	
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DG14	Logistics Support Equipment Advanced Development	485	95	88	88	87	96	95	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: This program supports advanced development of new and improved technologies for logistics support equipment such as material handling equipment (MHE).</p> <p>Acquisition Strategy: Develop engineering prototype and award competitive contract for production or select NDI equipment based on Market Investigation and RFPs from industry.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 366 Completed testing of cargo container retriever (CCR) prototypes. 119 Completed development of CCR stereo vision enhancement. <p>Total 485</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 38 Initiate contract package for Visibility Improvements for forklift Carriages (VIC). 54 Initiate VIC test. 2 SBIR/STTR 1 Revised Economic Assumption not available for execution <p>Total 95</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 40 Conduct technical testing of VIC prototypes. 48 Complete materiel change management documentation for VIC. <p>Total 88</p>											

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -

Advanced Development

DG14

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current Budget Estimate Submission

FY 1995

516

505

-20

FY 1996

97

FY 1997

90

96

-1

-2

88

C. Other Program Funding Summary

RDTE, 0604804.DH14, Logistics Support

Equipment

OPA3, M41200, All Terrain Lifting Articulating

System

OPA3, ML5365, Items Less Than \$2.0M (CSS-

EQ)

OPA3, M41200, Truck, Fork Lift, 50K lb

FY 1995

2476

FY 1996

1324

FY 1997

88

FY 1998

88

FY 1999

88

FY 2000

96

FY 2001

95

Total

To

Compl

Cont

Cost

Cont

Cont

D. Schedule Profile

1

FY 1995

2

3

X*

4

1

2

3

4

FY 1996

2

3

4

FY 1997

2

3

4

Completed testing of CCR prototypes

Conduct CCR Milestone II

Contract for Visibility Improvements for

forklift Carriages (VIC)

Complete testing of VIC prototypes

Complete materiel change management

documentation for VIC

* Completed Milestones

Project DG14

Page 14 of 35 Pages

Exhibit R-2 (PE 0603804A)

589

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -
Advanced Development

DG14

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Hardware Development	310	57	
Test and Evaluation	70		45
Government Engineering and Support	105	38	43
Government Program Support	485	95	88
Total			

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Miscellaneous					498	415	95		Cont	Cont
TARDEC	In-House	Various			189	70		88	Cont	Cont
TECOM										

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Subtotal Miscellaneous

Total Project

687	485	95	88	Cont
687	485	95	88	Cont

Project DG14

Page 15 of 35 Pages

Exhibit R-3 (PE 0603804A)

590

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
DK39

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -
Advanced Development

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DK39 General Support Equipment Advanced Development	835	959	869	1449	1428	1720	1871	Continuing	Continuing

A. Mission Description and Budget Item Justification: Develop and demonstrate the potential of prototype equipment to satisfy water purification, maintenance and environmental control requirements.

Acquisition Strategy: Transition to development of engineering prototypes or select NDI based on market survey and proposals from industry.

FY 1995 Accomplishments:

- 100 Developed computer model for Environmental Control Unit (ECU) performance.
- 171 Initiated ECU Prototype Fabrication.
- 564 Completed test and evaluation of water treatment technologies including pre-treatment, pumps, and reverse osmosis elements.
- Total 835

FY 1996 Planned Program:

- 175 Investigate commercial technology applicable to 9K British Thermal Units-Heat ECU unit.
- 250 Conduct Milestone I/II IPR for the Lightweight Water Purifier.
- 256 Prepare contract package for design/fabrication of prototype Lightweight Water Purifier.
- 254 Complete evaluation of commercially available Lightweight Water Purifier.
- 21 SBIR/STTR
- 3 Revised Economic Assumption not available for execution
- Total 959

FY 1997 Planned Program:

- 171 Select components and initial ECU system design.
- 450 Design and fabricate prototype Lightweight Water Purifier.
- 158 Initiate Pre-Production Qualification Testing (PPQT) and Initial Operational Test and Evaluation (IOTE) of Lightweight Water Purifiers.
- 90 Complete market survey of commercial packaged water units and conduct MS I/II IPR for Package Water Systems.
- Total 869

Project DK39

Page 16 of 35 Pages

Exhibit R-2 (PE 0603804A)

591

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PAPER NUMBER AND TITLE

0603804A Logistics and Engineering Equipment -

DK39

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	853	985	900
Appropriated Amount (FY 1995)	835		
Adjustment to FY 1995			
Appropriated Amount (FY 1996)		968	
Adjustment to FY 1996		-9	
Adjustments to Budget Year (FY 1997) since FY 1996			-31
President's Budget			
Current President's Budget Submit	835	959	869

C. Other Program Funding Summary	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Total Cost Cont
RDTE, 0604804.DL39, General Support Equipment Engineering Development OPA3, ML5335, Items Less Than \$2.0M (Water Equipment)	1555	1603	1677	2136	2899	2105	2111	5243

D. Schedule Profile	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Total Cost Cont
Developed ECU performance computer model	1	2	3	4	X*			
Initiated ECU Prototype Fabrication								
Investigate commercial technology applicable to 9K BTUH ECU unit								
Select components and complete initial ECU system design								
Completed evaluation of water treatment technologies								
Conduct MS I/II Lightweight Water Purifier IPR								

Exhibit R-2 (PE 0603804A)

592

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

0603804A Logistics and Engineering Equipment - DK39

4 - Demonstration and Validation

Advanced Development

D. Schedule Profile

FY 1997

FY 1996

FY 1995

1

2

3

4

1

2

3

4

1

2

3

4

1

2

3

4

Prepare contract package for design/
fabrication of Lightweight Water
Purifiers

X

Complete evaluation of commercially
available Lightweight Water Purifiers
Design/fabrication of LWP

X

Initiate PPQT and IOTE for Lightweight
Water Purifier

X

Complete market survey and conduct MS
I/II IPR for Packaged Water Systems

X

* Completed Milestones

Project DK39

Page 18 of 35 Pages

Exhibit R-2 (PE 0603804A)

593

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment - DK39

PROJECT

DK39

A. Project Cost Breakdown	FY 1995
Hardware Development	312
Program Management Support	300
Test and Evaluation	223
Government Engineering and Support	
Integrated Logistics Support	
Total	835

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations: None										
Support and Management Organizations: None										
Test and Evaluation Organizations: None										
Miscellaneous										
TARDEC/CECOM	In-House	Various				317	749	209		1275
Contractors	CPFF	Mar 95				118		450		568
NFESC	MIPR	Various				400				400
ARL	MIPR	Various					15	15		30
BRTRC	Task Order	Mar 96					40			40
TECOM	MIPR	Various					25	150		175
CECOM	MIPR	Various					30	30		60
NSF	MIPR	Various					85			85
ATCOM	MIPR	Various					15	15		30

Project DK39

Page 19 of 35 Pages

Exhibit R-3 (PE 0603804A)

594

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -
Advanced Development

DK39

Government Furnished Property: None

	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		535	754	609	Cont	Cont
Subtotal Support and Management			180	110	Cont	Cont
Subtotal Test and Evaluation		300	25	150	Cont	Cont
Subtotal Miscellaneous		835	959	869	Cont	Cont
Total Project						

Project DK39

Page 20 of 35 Pages

Exhibit R-3 (PE 0603804A)

595

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -
Advanced Development

PROJECT

DK41

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DK41 POL Distribution Equipment Advanced Development	648	885	891	912	876	958	951	Continuing	Continuing

A. Mission Description and Budget Item Justification: Develop and demonstrate the potential of prototype equipment to satisfy petroleum distribution requirements.

Acquisition Strategy: Develop engineering prototypes or select NDI based on market surveys and proposals from industry.

FY 1995 Accomplishments:

- 486 Awarded contract and initiated design of Petroleum Quality Analysis Set (PQAS) technology demonstration model.
- 100 Implemented/designed Standard Army Refueling System (SARS) as part of a demonstration vehicle.
- 62 Completed SARS qualification testing and fabricated adapters.
- Total 648

FY 1996 Planned Program:

- 282 Conduct system analysis of PQAS function and configuration.
- 503 Complete system design and initiate fabrication of PQAS technology demonstration model.
- 79 Complete performance TDP for SARS and conduct demonstrations
- 18 SBIR/STTR
- 3 Revised Economic Assumption not available for execution
- Total 885

FY 1997 Planned Program:

- 50 Update PQAS program management documentation for Milestone II IPR.
- 71 Prepare solicitation package for PQAS EMD Phase.
- 770 Complete fabrication and development testing PQAS technology demonstration model.
- Total 891

Project DK41

Page 21 of 35 Pages

Exhibit R-2 (PE 0603804A)

596

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

DK41

0603804A Logistics and Engineering Equipment -
Advanced Development

4 - Demonstration and Validation

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current Budget Estimate Submission

FY 1995

666

FY 1996

910

FY 1997

920

652

-4

894

-9

-29

885

891

C. Other Program Funding Summary

RDTE, 0604804.DL41, POL Distribution

Equipment Engineering Development

FY 1995

1428

FY 1996

1187

FY 1997

1033

FY 1998

1155

FY 1999

1177

FY 2000

1147

FY 2001

1137

To
Compl
Cont
Total
Cost
ContD. Schedule Profile

Released PQAS solicitation

Implemented/designed SARS for demo

vehicle

Completed SARS qualification testing,

fabricated adapters

Awarded contract to design PQAS

technology demo model

Conduct system analysis of PQAS

Complete SARS performance TDP and

conduct demonstrations

Initiate fabrication of PQAS tech demo

model

Prepare solicitation package for PQAS

EMD Phase

FY 1995

2

3

X*

FY 1996

2

3

X*

FY 1997

1

2

3

FY 1998

4

1

4

FY 1999

4

1

4

FY 2000

2

3

X

FY 1997

2

3

4

X

Project DK41

Page 22 of 35 Pages

Exhibit R-2 (PE 0603804A)

597

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996	PROJECT		
BUDGET ACTIVITY		PE NUMBER AND TITLE										0603804A Logistics and Engineering Equipment - Advanced Development		DK41
4 - Demonstration and Validation														
<u>D. Schedule Profile</u>		FY 1995		FY 1996		FY 1997								
		1	2	3	4	1	2	3	4					
Complete fabrication and testing of PQAS technology demonstration model												X		
Update PQAS program management documents for Milestone II IPR												X		
* Completed Milestones														

Project DK41

Page 23 of 35 Pages

Exhibit R-2 (PE 0603804A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation 0603804A Logistics and Engineering Equipment - DK41

Advanced Development

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Hardware Development	512	690	696
Test and Evaluation	20	50	50
Government Engineering and Support	91	95	95
Government Program Support	25	50	50
Total	648	885	891

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations: TARDEC										
Support and Management Organizations: ARL, ATCOM, TACOM										
Test and Evaluation Organizations: TECOM, TEXCOM										
Miscellaneous:										
TARDEC	In-House	Various			329	217	142	206	Cont	Cont
ETG	CPFF	Sep 95			433	386	606	540	Cont	Cont
TECOM	MIPR							120		
TEXCOM	MIPR									
ARL	MIPR	Feb 96			37	15	15	15	Cont	Cont
ATCOM	MIPR	Mar 96				30	50	10	Cont	Cont
TACOM	MIPR	Mar 96					72		Cont	Cont

Government Furnished Property: None

Project DK41

Page 24 of 35 Pages

Exhibit R-3 (PE 0603804A)

599

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			0603804A Logistics and Engineering Equipment - DK41		
4 - Demonstration and Validation	Advanced Development					
	Total					
	Prior to	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Subtotal Product Development		603	860	746		
Subtotal Support and Management		45	25	25		
Subtotal Test and Evaluation				120		
Subtotal Miscellaneous	799	648	885	891		
Total Project	799					

Project DK41

Page 25 of 35 Pages

Exhibit R-3 (PE 0603804A)

600

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -
Advanced Development

D266

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D266 Airdrop Equipment Advanced Development	1197	1452	1444	1452	1452	1433	1611	Continuing	Continuing

A. Mission Description and Budget Item Justification: Conduct accelerated demonstration and validation of airdrop systems and equipment that will provide advanced personnel and cargo airdrop capabilities over a range of altitudes with offset emphasis on improved safety and greater precision, balanced with reduced vulnerability of personnel, aircraft, aircrew and equipment.

Acquisition Strategy: Single cycle accelerated development with type classification directly upon successful conclusion of Demonstration/Validation development.

FY 1995 Accomplishments:

- 1197 Designed, fabricated and began testing prototype Enhanced Container Delivery System (ECDS) to improve accuracy, enhance load survivability and expand range of critical resupply operations (food, water, fuel and medical supplies) from high to low altitudes.

Total 1197

FY 1996 Planned Program:

- 1116 Conduct combined technical/user testing of the ECDS.
- 300 Evaluate Advanced Tactical Parachute System (ATPS) candidates from market survey. System intended to increase the safety and lethality of Force XXI Airborne assault operations.

- 32 SBIR/STTR

- 4 Revised Economic Assumption not available for execution

Total 1452

FY 1997 Planned Program:

- 1003 Design, fabricate and conduct technical/user testing of prototype ATPS.
- 441 Conduct Milestone II/III for ECDS.

Total 1444

Project D266

Page 26 of 35 Pages

Exhibit R-2 (PE 0603804A)

601

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

D266

0603804A Logistics and Engineering Equipment - Advanced Development

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current President's Budget Submit

C. Other Program Funding Summary

RDTE, 0604804.D279: Airdrop Equipment

Engineering Development

D. Schedule Profile

Designed and fabricated ECDS

Conclude testing of ECDS

Evaluate ATPS from market survey

Conduct MS II/III for ECDS

Design, fabricate and conduct

user/technical testing of ATPS

*** Completed Milestones**

Project D266

Page 27 of 35 Pages

Exhibit R-2 (PE 0603804A)

602

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -
Advanced Development

D266

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Primary Hardware Development	871	918	1019
Test and Evaluation	273	459	350
Government Support and Management	53	75	75
Total	1197	1452	1444

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
SSCOM	In-House				22858	853	618	601	Cont	Cont
QMSCH/OGA	MIPR					18	300	418	Cont	Cont
Support and Management Organizations					590	53	75	75	Cont	Cont
SSCOM										
Test and Evaluation Organizations					1763	153	336	300	Cont	Cont
TECOM/OGA						120	125	50	Cont	Cont
SSCOM										

Government Furnished Property: None

Subtotal Product Development	22858	871	918	1019	Cont
Subtotal Support and Management	590	53	75	75	Cont
Subtotal Test and Evaluation	1763	273	159	350	Cont
Total Project	25211	1197	1452	1444	Cont

Project D266

Page 28 of 35 Pages

Exhibit R-3 (PE 0603804A)

603

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603804A Logistics and Engineering Equipment - Advanced Development								D428	
	COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D428 Tactical Rigidwall Shelter Advanced Development		789	3482	3951	2594	926	1050	1042	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Develop a family of tactical rigid wall shelters to enhance soldier survivability and sustainability of command, control, communications and intelligence. These shelters provide highly mobile, joint service platforms for the digitization of the battlefield, housing many critical vehicle-mounted battlefield systems, medical critical care in a Chemical/Biological (C/B) environment and high tech maintenance.</p> <p>Acquisition Strategy: Developments transition to Engineering and Manufacturing Development.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 698 Completed fabrication of M105 Cargo Bed Cover (CBC) and completed testing of High Mobility Multipurpose Wheeled Vehicle (HMMWV) and 2-1/2 Ton truck CBC. CBCs will protect and secure unit and mission equipment while maintaining critical mission mobility capabilities. 91 Completed Large Standard Integrated Command Post System (SICPS) Shelter Pre-production Qualification Test (PPQT) at Aberdeen Proving Ground (APG) and Force Development Test and Evaluation (FDTE) at Ft. Hood, TX. The Large SICPS provides Corps Commanders with the ability to control a digitized battlefield from a high quality, survivable environment. <p>Total 789</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 855 Complete development of CBC variants for HMMWV, complete testing of M105 CBC, and redesign and fabricate 2 1/2 ton truck CBC. 2540 Complete technical testing of Large SICPS Shelter, fabricate Operational Test (OT) shelters, prepare manuals, and begin OT. 77 SBIR/STTR 10 Revised Economic Assumption not available for execution <p>Total 3482</p>											

Project D428

Page 29 of 35 Pages

Exhibit R-2 (PE 0603804A)

604

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -

**PROJECT
D428**

FY 1997 Planned Program:

- 945 Complete development of M105A1 CBC and award design/fabrication contract for M101 Trailer CBC, High Mobility Trailer-Light (HMT-L) CBC, and HMT-Heavy CBC. Complete retesting and development of 2 1/2 ton truck CBC.
- 1447 Conduct OT of the Large SICPS Shelter, prepare documentation for MS I/III IPR and prepare the specification and solicitation package for production contract.
- 1559 Write scope of work, assemble solicitation package, review proposals and award a contract for the design and fabrication of prototype survivable command post shelters that will provide ballistic protection, protection from directed energy and fuel air weapons and enhanced NBC protection.

Total 3951

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Appropriated Amount (2)
Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjusted to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current President's Budget Submission

3951

C. Other Program Funding Summary

RDTE, 0604804, SICPS Rigidwall Shelter
Engineering Development
OPA2, BZ9962, SICPS

D. Schedule Profile

Completed testing of HMMWV CBC

Completed PPOT of Large SICPS Shelter

Complete testing and redesign of M105

Trailer CBC

Complete development of HMMWV CBC

Project D428

Page 30 of 35 Pages

Exhibit R-2 (PE 0603804A)

605

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996		
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
4 - Demonstration and Validation		0603804A Logistics and Engineering Equipment - Advanced Development								D428			
		FY 1995				FY 1996				FY 1997			
		1	2	3	4	1	2	3	4	1	2	3	4
<u>D. Schedule Profile</u>													
Complete technical testing of the Large SICPS Shelter													
Complete development of the Large SICPS Shelter												X	
Complete development of 2 1/2 ton truck CBC													X
* Completed Milestones													

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

PROJECT

D428

PE NUMBER AND TITLE

0603804A Logistics and Engineering Equipment -
Advanced Development

BUDGET ACTIVITY

4 - Demonstration and Validation

	FY 1995	FY 1996	FY 1997
A. Project Cost Breakdown			
Primary Hardware Development	456	2485	3300
Test and Evaluation	279	700	325
Program Management Support	54	297	326
Total	789	3482	3951

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
SSCOM	In-House				14241	58	200	400	Cont	Cont
Plastics Research Corp	Various					382	1485	2300	Cont	Cont
Brunswick						16	800	600	Cont	Cont
Ft. Belvoir	MIPR									
CASCOM										
Support and Management Organizations					3551	54	297	326	Cont	Cont
SSCOM										
Test and Evaluation Organizations					7229	279	700	325	Cont	Cont
TECOM	MIPR									
Government Furnished Property: None										
Subtotal Product Development					14241	456	2485	3300	Cont	Cont
Subtotal Support and Management					3551	54	297	326	Cont	Cont
Subtotal Test and Evaluation					7229	279	700	325	Cont	Cont
Total Project					25021	789	3482	3951	Cont	Cont

Project D428

Page 32 of 35 Pages

Exhibit R-3 (PE 0603804A)

607

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment - D526

Advanced Development

PROJECT

D526

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D526 Marine Orientation Log Equipment Advanced Development	371	0	0	0	338	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification: This project provides advanced development of technology necessary to improve marine logistical equipment. The effort for a Containerized Machine Shop (CMS) was focused on providing an enhanced state-of-the-art watercraft repair facility in a containerized system. The CMS will be easily transportable and capable of being mounted on a container ship.

Acquisition Strategy: RDTE followed by competitive procurement.

FY 1995 Accomplishments:

- 75 Completed Army Watercraft Master Plan.
- 128 Completed concept development of Deployable Watercraft Maintenance Facility (DWMF) which was previously called a CMS.
- 168 Concept development initiated for Port/Watercraft Communications Suite.
- Total 371

FY 1996 Planned Program: None

FY 1997 Planned Program: None

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current President's Budget Submit

FY 1995 FY 1996 FY 1997

383

375

-4

371

Project D526

Page 33 of 35 Pages

Exhibit R-2 (PE 0603804A)

608

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603804A Logistics and Engineering Equipment -
Advanced Development

D526

C. Other Program Funding Summary: None

D. Schedule Profile

	FY 1995		FY 1996		FY 1997
1	2	4	2	1	3
	X*				4

DWMF Contract Awarded (option)
Held In-Process Review
Report/Concept Acceptance

X*

X

* Completed Milestones

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	March 1996	PROJECT
BUDGET ACTIVITY					PE NUMBER AND TITLE		
4 - Demonstration and Validation					0603804A Logistics and Engineering Equipment - Advanced Development		D526
A. Project Cost Breakdown					<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
Contractor Engineering Support					348		
Program Management Support					23		
Total					371		
B. Budget Acquisition History and Planning Information							
Performing Organizations							
Contractor or	Contract						
Government	Method/Type	Award or	Performing	Total			
Performing	or Funding	Obligation	Activity	Prior to			
Activity	Vehicle	Date	EAC	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>Total</u>
Product Development Organizations							
Miscellaneous	SS-FP			217	230		447
Support and Management Organizations							
NSWC	MIPR			200	118		318
ATCOM	MIPR			46	23		69
Test and Evaluation Organizations: None							
Government Furnished Property: None							
Subtotal Product Development					217	230	Cont
Subtotal Support and Management					246	141	Cont
Subtotal Test and Evaluation					463	371	Cont
Total Project							

Project D526

Page 35 of 35 Pages

Exhibit R-3 (PE 0603804A)

610

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation
0603805A Combat Service Support Control System Evaluation and Analysis

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	18462	13555	13140	7821	7858	0	0	Continuing	Continuing
D091 Combat Service Support Control System	17735	12054	11119	5937	5936	0	0	0	136516
D246 Tactical Communications System-Advanced Development	438	1501	2021	1884	1922	0	0	Continuing	Continuing
D2GT CSSCS Operational Test	289	0	0	0	0	0	0	0	289

Mission Description and Budget Item Justification: Project D091, the Combat Service Support Control System, is a computer software system designed to assist the Combat Service Support (CSS) Commander and his staff to rapidly collect, store, analyze, and disseminate CSS information to support the functions of command, control and resource management. CSS control centers must provide a rapid decision support capability and supportive information to commanders more quickly than is possible with the present manual systems. This program develops the CSS battlefield functional area (BFA) node of the Army Tactical Command and Control System (ATCCS) which is a component of the Army Battle Command System (ABCS). Project D246, Tactical Communications System - Advanced Development, provides for insertion of proven communications technology from program element 0602782A, Project AH92 exploratory development into advanced development. Examples of these potential programs are the Multiband, Multimode Radio, high power solid state amplifiers and couplers, and packet appliques used to increase network efficiency. Project D2GT, CSSCS Operational Test supports planned operational test & evaluation of CSSCS. Project D246 provides for the demonstration and validation of advanced technologies and is therefore appropriately funded in Budget Activity 4. Projects D091 and D246 include research efforts that support the engineering and manufacturing development phase of the acquisition strategy and should therefore be placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603805A Combat Service Support Control
System Evaluation and Analysis

PROJECT

D091

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D091 Combat Service Support Control System	17735	12054	11119	5937	5936	0	0	0	136516

A. Mission Description and Justification: Project D091, Combat Service Support Control System. The CSSCS is a computer software system designed to assist the CSS Commander and his staff to rapidly collect, store, analyze, and disseminate CSS information to support the functions of command, control and resource management. CSS control centers must provide a rapid decision support capability and supportive information to commanders more quickly than is possible with the present manual systems. This program develops the CSS BFA node of the ATCCS, which is a component of the ABCS.

Acquisition Strategy: Acquisition strategy is to pursue an evolutionary development process to complete user requirements for Version 3 and follow-on tailored IOTE-II. There are five versions, of which two have been completed and the third completed Initial Operational Test & Evaluation (IOT&E) I in September 1994. A follow-on IOT&E II on Version 3 is planned for September - November 1996. Versions 4 and 5 will be developed under the Army Global Command and Control System (AGCCS) contract awarded in December 1994.

FY 1995 Accomplishments:

- 14430 Continued development of Version 3 software
- 2305 Continued fielding assessment of Version 3 at Ft. Hood
- 1000 Prepared documentation and conducted Army Systems Acquisition Review Council (ASARC) III (Low Rate Initial Production (LRIP) & Command, Control, Communications and Intelligence (C3I) Committee Review

Total 17735

FY 1996 Planned Program:

- 3500 Continue Version 3 software development
- 3714 Begin Version 4 software development
- 2000 Continue LRIP activity in accordance with Acquisition Decision Memo at III Corps
- 750 Prepare for and conduct Army Warfighter Experiment (AWE) and Task Force XXI activities.
- 800 Prepare and conduct Version 4 Preliminary Design Review (PDR) and Critical Design Review (CDR)
- 1000 Prepare for and begin IOTE-II
- 256 SBIR/STTR
- 34 Revised Economic Assumptions - Not available for execution

Total 12054

Project D091

Page 2 of 12 Pages

Exhibit R-2 (PE 0603805A)

612

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603805A Combat Service Support Control
System Evaluation and Analysis

D091

FY 1997 Planned Program:

- 2800 Complete Version 3 software development
- 5269 Continue Version 4 software development
- 1000 Conclude IOTE-II
- 800 Prepare documentation and conduct ASARC III (Full Scale Production (FSP)) and C3I Committee Review
- 500 Begin fielding of Version 3
- 750 Begin Version 4 Limited User Test (LUT)
- Total 11119

B. Project Change Summary

Previous President's Budget (FY 96)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995	FY 1996	FY 1997
18096	12404	11489
17735		
	12176	
	-122	
		-370
	12054	11119

Change Summary Explanation:

Funding: FY 96 - (-122) the portion of this program that has been proposed for rescission.

FY97 - (-370) reduction due to revised inflation rates.

C. Other Program Funding Summary

Procurement, OPA 2 (W34600)

Spares (MA9706/BS9706)

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
5977	5730	5813	5826	5826	14034	13936	65145	122234
1402	1317	885	300	193	188	187	2767	5878

Project D091

Page 3 of 12 Pages

Exhibit R-2 (PE 0603805A)

613

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		March 1996		PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE												PROJECT	
4 - Demonstration and Validation		0603805A Combat Service Support Control System Evaluation and Analysis												D091	
		FY 1995				FY 1996				FY 1997					
		1	2	3	4	1	2	3	4	1	2	3	4		
D. Schedule Profile															
ASARC III (LRIP)			X*												
C3I Committee Review			X*												
V4 PDR							X								
V4 CDR								X							
V3 IOTE-II									X						
ASARC III (FSP)										X					
FUE V3											X				
V4 Technical Test												X			
V4 LUT													X		
*Milestone Complete															

Project D091

Page 4 of 12 Pages

Exhibit R-2 (PE 0603805A)

Project D091

Page 4 of 12 Pages

Exhibit R-2 (PE 0603805A)

614

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603805A Combat Service Support Control

D091

System Evaluation and Analysis

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Software Development	11000	7214	7129
Program Management Support	3003	2050	1320
COE/CHS/Common Support	2900	1500	900
Operational Test and Evaluation	832	1000	1770
SBIR/STTR		256	
Revised Economic Assumptions - Not available for execution		34	
Total	17735	12054	11119

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
TRW	C/CPFF	7/87	15731	15731	0	0	0	0	0	15731
TRW	C/CPAF	2/91	57990	43932	9500	3500	0	0	0	56932
Lockheed Martin	C/CPAF	12/94	TBD	0	1500	3714	7129	5603	5603	17946
COE/Com Spt	MIPR			1545	2000	1000	900	500	500	5945
Support and Management Organizations										
PM CSSCS			11546	11546	1905	856	400	875	875	15582
CECOM	MIPR		706	706	204	304	320	650	650	2184
SDC-LEE	MIPR		0	0	136	250	265	520	520	1171
SDC-HUACHUCA	MIPR		350	350	135	150	165	330	330	1130
EER/VITRO/	MIPR		1601	1601	910	1050	1000	2000	2000	6561
FEDSIM										
SBIR/STTR						256				256
Rev Econ Assmp						34				34

Test and Evaluation Organizations

Project D091

Page 5 of 12 Pages

Exhibit R-3 (PE 0603805A)

615

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996
BUDGET ACTIVITY										PROJECT	
4 - Demonstration and Validation										D091	
0603805A Combat Service Support Control											
System Evaluation and Analysis											
Contractor or Government											
Performing Activity											
GOVT											
EPG/CAC											
OPTEC											
Contract											
Method/Type or Funding											
Vehicle											
MIPR											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-TRW/LMC											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											
MIPR											
Contract											
Method/Type or Funding											
Vehicle											
CHS-III CORPS											

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603805A Combat Service Support Control

D246

System Evaluation and Analysis

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D246 Tactical Communications System-Advanced Development	438	1501	2021	1884	1922	0	0	Continuing	Continuing

A. Mission Description and Budget Item Justification This project will validate the new Tactical Internet capability required for Force XXI. It provides definition, integration and testing of a mix of mature and prototype products which will be used to develop a Tactical Internet capability. The Tactical Internet will be the primary data communications infrastructure at Corps and below for Force XXI and will revolve around interconnecting a mix of existing (e.g.: SINGGARS, SINGGARS SIP, EPLRS, MSE TPN, ETC) and emerging communications devices using gateways and routers. Gateways will also provide the link to Strategic levels. This capability will result in the tactical equivalent of the Information Highway and will support key battlefield functional areas to include logistics reporting, telemedicine, etc. The Tactical Internet will use and leverage commercial network standards and products. The "Internet Protocol" (IP) suite will be used to provide seamless communications with the capability to dynamically route data to hosts. It will be designed to facilitate technology insertion. The focus of this project will be to reduce the technical risk by assembling, integrating, and testing the Tactical Internet components prior to TF XXI, Division XXI, and Corps XXI. New services and components will be added and tested as required for each iteration leading up to Force XXI.

Acquisition Strategy: The efforts funded in this project are non-system specific, therefore no acquisition strategy is provided.

FY 1995 Accomplishments:

- 105 Procured Commercial off the shelf (COTS) Adaptive High frequency (HF) Applique' for field evaluation
- 135 Demonstration and partial integration of components and instrumentation into the DIL testbed
- 198 Documented SATCOM Paging requirements
- Total 438

FY 1996 Planned Program:

- 579 Establish Tactical Internet Testbed and baseline the performance of hardware, software and protocols
- 535 Conduct near term experiments to address the internet architecture for the Task Force (TF) XXI Exercise
- 250 Provide technical support for the Task Force XXI field testing and training
- 100 Begin incorporating Digital Battlefield Communications (DBC)/Battlefield Transmission System (BITS) near term products into the tactical internet
- 33 SBIR/STTR
- 4 Revised Economic Assumption - Not Available for Execution.
- Total 1501

Project D246

Page 7 of 12 Pages

Exhibit R-2 (PE 0603805A)

617

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603805A Combat Service Support Control
System Evaluation and Analysis

D246

FY 1997 Planned Program:

- 678 Provide on-site tactical internet technical support at Ft Hood and Ft Irwin for TFXXI
- 889 Insert new technologies and expand the testbed to address requirements for Division size networks
- 350 Develop and provide empirical test data for the Division 98 simulation exercise
- 104 Incorporate latest DBC/BITS Products
- Total 2021

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustment to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

	FY 1995	FY 1996	FY 1997
	448	1565	2092
	439		
	-1		
		1516	
		-15	
			-71
	438	1501	2021

Change Summary Explanation:

Funding: FY 95 (-1) reprogrammed for higher priority efforts

FY 96 (-15) the portion of this program that has been proposed for rescission.

FY97 (-71) decrement is due to revised inflation rates

C. Other Program Funding Summary There are no other related RDT&E or other appropriation efforts.D. Schedule Profile The efforts in this project are non-system specific; therefore no milestones are provided.

Project D246

Page 8 of 12 Pages

Exhibit R-2 (PE 0603805A)

618

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

**0603805A Combat Service Support Control
System Evaluation and Analysis**

PROJECT

D246

A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997
CECOM RDEC INTERNAL TECHNICAL SUPPORT	230	695	1172
CONTRACTOR TECHNICAL SUPPORT	205	720	720
TRAVEL & MISC (ROUTERS, CABLES, CONNECTORS)	3	86	129
Total	438	1501	2021

B. Budget Acquisition History and Planning Information Not Applicable

Project D246

Page 9 of 12 Pages

Exhibit R-3 (PE 0603805A)

619

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603805A Combat Service Support Control
System Evaluation and Analysis

D2GT

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D2GT CSSCS Operational Test	289	0	0	0	0	0	0	0	289

A. Mission Description and Justification: Project D2GT - CSSCS Operational Test, provides funding for the analysis of the PM CSSCS IOT&E test results.

Acquisition Strategy: Not Applicable

FY 1995 Accomplishments:

- 289 Evaluated CSSCS IOT&E Test Results/Published Report
- Total 289

FY 1996 Planned Program: Program not funded in FY 1996

FY 1997 Planned Program: Program not funded in FY 1997

B. Project Change Summary

Previous President's Budget (FY 96)
Appropriated Amount (FY 1995)
Adjustments to FY 1995
Appropriated Amount (FY 1996)
Adjustments to FY 1996
Adjustments to Budget Year (FY 1997) since
FY 1996 President's Budget
Current President's Budget Submit

FY 1995	FY 1996	FY 1997
91	0	0
89		
+200		
289	0	0

Change Summary Explanation:

Funding: FY 95 increased to support CSSCS IOT&E.

C. Other Program Funding Summary Not Applicable

Project D2GT

Page 10 of 12 Pages

Exhibit R-2 (PE 0603805A)

620

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603805A Combat Service Support Control

D2GT

System Evaluation and Analysis

D. Schedule Profile

	FY 1995	FY 1996	FY 1997
1	2 3	2 3	2 3 4
X*	X*		

Perform Analysis - PM CSSCS IOT&E

Data

Conduct, test, evaluate CSSCS IOT&E II

Conduct, test, evaluate CSSCS LUT

* Milestone Complete.

X

X

X

Project D2GT

Page 11 of 12 Pages

Exhibit R-2 (PE 0603805A)

621

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603805A Combat Service Support Control

System Evaluation and Analysis

PROJECT

D2GT

A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997	Total Program
Analysis of PM CSSCS IOT&E Test Data		289		0	
Total		289			
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995
Product Development Organizations: None					
Support and Management Organizations: None					
Test and Evaluation Organizations					
OPTEC	NA	NA	0	0	289
Government Furnished Property: None					
Subtotal Product Development					
Subtotal Support and Management					
Subtotal Test and Evaluation					
Total Project					
			289		289
			289		289

Project D2GT

Page 12 of 12 Pages

Exhibit R-3 (PE 0603805A)

622

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603807A Medical Systems - Advanced Development

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	14960	10288	10211	9457	8931	9391	9316	0	Continuing
D808 DoD Drug and Vaccine-Advanced Development	7179	3845	3835	3790	3746	3693	3664		Continuing
D811 Military HIV Vaccine and Drug-Advanced Development	187	2598	2636	1945	1461	2021	2005		Continuing
D836 Combat Medical Materiel-Advanced Development	2915	2660	2905	2893	2867	2832	2809		Continuing
D837 Soldier System Protection-Advanced Development	0	1185	835	829	857	845	838		Continuing
D993 Medical Defense Against Chemical Threats *	4679	0	0	0	0	0	0	0	11525

* Starting in FY 1996, funding has been consolidated into DOD PE 0604384BP in accordance with P.L. 103-160.

Mission Description and Budget Item Justification: This program element (PE) funds the advanced development of medical materiel necessary to field an effective capability for medical defense against chemical warfare agents and infectious diseases. Starting in FY 1996, funding for chemical and biological defense medical research and development efforts (project D993) have been consolidated into DOD PE 0604384BP in accordance with P.L. 103-160. Products developed will provide for maximum soldier survivability and enhanced sustainability of performance in an environment contaminated with chemical and biological threat. The PE funds Advanced Development (AD) of systems for medical protection against naturally occurring diseases and Human Immunodeficiency Virus (HIV). This includes development and initial human testing of vaccines, prophylactic and therapeutic drugs. Additionally, the PE supports AD of field medical equipment and drugs essential for combat casualty care on a high intensity battlefield while reducing logistical support requirements. The PE also funds AD systems which provide enhancement of or protection against physiological and psychological factors affecting cognitive and physical performance imposed by military systems, combat operations or the environment. This includes AD of vision corrective devices. Systems include resuscitators, blood substitutes, field x-ray, and field production of medical grade oxygen. This program is primarily managed by the U.S. Army Medical Research and Materiel Command. This PE focuses on efforts to demonstrate general military utility to include demonstration and validation in the area of medical materiel and is properly placed in Budget Activity 4.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603807A Medical Systems - Advanced Development

PROJECT

D808

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D808 DoD Drug and Vaccine-Advanced Development	7179	3845	3835	3790	3746	3693	3664	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D808-DoD Drug and Vaccine-Advanced Development: This project funds demonstration and validation of candidate medical countermeasures such as vaccines and drugs through safety, immunogenicity, and small scale efficacy testing in volunteers against naturally occurring infectious diseases of mission aborting potential. Work performed in laboratories and among troop populations is directed to prevention, diagnosis and treatment of viral, bacterial and parasitic diseases, so as to prevent casualties, sustain operational performance and minimize deaths and disability of armed forces during military operations. Some major contractors are The Salk Institute, Swiftwater, PA, University of Illinois, Chicago, IL, South Florida Research Institute, Miami, FL, and Kenya Medical Research Institute, Nairobi, Kenya.

Acquisition Strategy: Test and evaluate in-house and commercially developed products in extensive government managed clinical trials to gather data required for FDA licensure.

FY 1995 Accomplishments:

- 1099 Demonstrated safety and efficacy in Phase I/II trials of malaria vaccine Spf66.
- 302 Conducted Phase I safety trials with Rift Valley Fever live vaccine.
- 2684 Conducted initial clinical trials to evaluate human safety and efficacy of antimalarial drugs Halofantrine, WR238605, and azithromycin.
- 529 Demonstrated efficacy in Phase II trials of Shigella flexneri 2a-2 vaccine.
- 726 Demonstrated efficacy in Phase II trials of recombinant hemorrhagic fever with renal syndrome (Hantaan) vaccine.
- 679 Demonstrated safety and efficacy in Phase I/II trials of Campylobacter vaccine.
- 675 Continued Phase II clinical study of antileishmanial drug WR 6026.
- 333 Demonstrated and validated off the shelf technologies to develop telemedicine hardware and concepts in the prevention, diagnosis and treatment of infectious diseases.
- 152 Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.

Total 7179

Project D808

Page 2 of 17 Pages

Exhibit R-2 (PE 0603807A)

624

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

PROJECT
D808

PE NUMBER AND TITLE

0603807A Medical Systems - Advanced
Development

BUDGET ACTIVITY

4 - Demonstration and Validation

FY 1996 Planned Program:

- 1995 Continue safety and efficacy evaluations of antimalarial drugs, azithromycin, Halofantrine, WR238605 and antileishmanial drug WR60626. Initiate development of antimalarial drug arteether and topical antileishmanial drug paromomycin.
- 1027 Conduct expanded Phase II trials of a malaria blood stage vaccine Spf66.
- 137 Complete Phase II testing of the recombinant Hantaan vaccine.
- 536 Complete Phase I/II trials of the Campylobacter vaccine.
- 52 Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts in the prevention, diagnosis and treatment of infectious diseases.
- 12 Revised Economic Assumption not available for execution.
- 86 SBIR/STTR
- Total 3845

FY 1997 Planned Program:

- 2102 Conduct expanded trial to evaluate safety and efficacy of antimalarial drugs WR238605, arteether, Halofantrine, and antileishmanial drugs WR60626 and paromomycin.
- 1114 Conduct Phase 2 testing of the Group B meningococcal vaccine.
- 464 Conduct Phase 1/2 testing of a recombinant vaccine against hemorrhagic fever renal syndrome caused by puumala virus.
- 155 Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts in the prevention, diagnosis and treatment of infectious diseases.
- Total 3835

B. Project Change Summary

Previous President's Budget Request (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget (FY 1997) year since FY 1996

Presidents Budget

Current Budget Submit For FY 1997

FY 1995

7254

7102

77

FY 1996

3953

FY 1997

3970

3884

-39

-135

7179

3845

3835

Project D808

Page 3 of 17 Pages

Exhibit R-2 (PE 0603807A)

625

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT D808	
BUDGET ACTIVITY		PE NUMBER AND TITLE											
4 - Demonstration and Validation		0603807A Medical Systems - Advanced Development											
		FY 1995	FY 1996	FY 1997				FY 1995	FY 1996	FY 1997	FY 1998	Budget to Complete	Total Program
A. Project Cost Breakdown													
Test & Evaluation		3934	3025	2849									
Product Development		2634	220	631									
Project Management		611	502	355									
Total		7179	3747	3835									
B. Budget Acquisition History and Planning Information													
Performing Organizations													
Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	FY 1998	Budget to Complete	Total Program		
Product Development Organizations													
Contracts	NA	NA	NA	NA	NA	333	0	0		Cont	Cont	46511	
Salk Institute	CPFF	APR 1988	50556	50556	43325	2301	220	631		Cont	Cont		
Support and Management Organizations													
USAMMDA	NA	NA	NA	NA	NA	384	326	227		Cont	Cont	962	
Contracts	NA	NA	NA	NA	NA	227	176	128		Cont	Cont	545	
Test and Evaluation													
Organizations													
Walter Reed Army	NA	NA	NA	NA	NA	1919	1885	918		Cont	Cont	4958	
Inst of Research													
Army Laboratories	NA	NA	NA	NA	NA	582	355	96		Cont	Cont	1056	
Navy Laboratories	NA	NA	NA	NA	NA	679	474	821		Cont	Cont	1179	
Contracts	NA	NA	NA	NA	NA	754	311	1014		Cont	Cont	2132	
Government Furnished Property: None													
Subtotal Product Development			2634				220	631				10832	
Subtotal Support and Management			611				502	355					
Subtotal Test and Evaluation			3934				3025	2849					
Total Project			7179				3747	3835				10832	
Project D808													
Page 5 of 17 Pages													
Exhibit R-3 (PE 0603807A)													

627

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603807A Medical Systems - Advanced Development								D811	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D811	Military HIV Vaccine and Drug-Advanced Development	187	2598	2636	1945	1461	2021	2005	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Project D811-Military HIV Vaccine and Drug-Advanced Development: This project funds the Congressionally-mandated, militarily relevant HIV research for demonstration and validation of candidate vaccines and drugs through safety, immunogenicity and small scale efficacy testing and behavioral intervention in volunteers. Efforts are directed to answer militarily unique needs affecting manning, mobilization and deployment.</p> <p>Acquisition Strategy: Test and evaluate commercially developed vaccine candidates in government managed trials.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 98 Prepared infrastructure to conduct field trials of a candidate vaccine to prevent HIV-1 in Thailand. 89 Developed potential cohorts for upcoming field trial of HIV preventive vaccine. Enrolled volunteers for Phase I vaccine study. <p>Total 187</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 1583 Conduct safety and immunogenicity studies in human volunteers in Thailand to determine the best candidate to transition. 949 Continue development of potential cohorts for upcoming field trial. 8 Revised Economic Assumption not available for execution. 58 SBIR/STTR <p>Total 2598</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 2636 Transition to advanced development a vaccine for the prevention of HIV-1. <p>Total 2636</p>											

Project D811

Page 6 of 17 Pages

Exhibit R-2 (PE 0603807A)

628

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603807A Medical Systems - Advanced
Development

D811

B. Project Change Summary	FY 1995	FY 1996	FY 1997
Previous President's Budget Request (FY 1996)	193	2671	2729
Appropriated Amount (FY 1995)	187		
Adjustments to FY 1995			
Appropriated Amount (FY 1996)		2624	
Adjustments to FY 1996		-26	
Adjustments to Budget (FY 1997) year since FY 1996			-93
Presidents Budget			
Current Budget Submit For FY 1997	187	2598	2636

C. Other Program Funding Summary: Not Applicable**D. Schedule Profile:** Multiple medical developmental products will advance through various events throughout the FY.

Project D811

Page 7 of 17 Pages

Exhibit R-2 (PE 0603807A)

629

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603807A Medical Systems - Advanced Development

D811

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Test & Evaluation	187	2532	2636
Product Development	0	0	0
Project Management	0	0	0
Total	187	2532	2636

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government

Method/Type or Funding Vehicle

Award or Obligation Date

Performing Activity

Project Office

Total Prior to FY 1995

FY 1995

FY 1996

FY 1997

FY 1998

Budget to Complete

Total Program

Product Development Organizations: None

Support and Management Organizations

Contract NA

Test and Evaluation Organizations

Army Laboratories

Contracts

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

Contract	NA	NA	0	0	0	0	0
Test and Evaluation Organizations	NA	NA	0	0	0	0	0
Army Laboratories	NA	NA	187	2532	2636	Cont	Cont
Contracts	NA	NA	187	2532	2636	Cont	Cont
Government Furnished Property: None	NA	NA	0	0	0	0	0
Subtotal Product Development	NA	NA	0	0	0	0	0
Subtotal Support and Management	NA	NA	187	2532	2636	Cont	Cont
Subtotal Test and Evaluation	NA	NA	187	2532	2636	Cont	Cont
Total Project	NA	NA	187	2532	2636	Cont	Cont

Project D811

Page 8 of 17 Pages

Exhibit R-3 (PE 0603807A)

630

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603807A Medical Systems - Advanced Development

D836

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D836 Combat Medical Materiel-Advanced Development	2915	2660	2905	2893	2867	2832	2809	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D836-Combat Medical Materiel-Advanced Development: The project supports advanced development of new and improved systems essential for battlefield casualty care, patient transport and evacuation, and return to duty in support of special contingency and conventional force operations. Primary civilian contractors are University of Illinois, Chicago, IL and Ohemda Corp., Chicago, IL.

Acquisition Strategy: Evaluate commercially developed materiel in government managed tests for hardening or other modification.

FY 1995 Accomplishments:

- 186 Concluded ongoing pre-clinical studies and terminated microencapsulated antibiotic ampicillin.
- 50 Developed an automated system to deglycerolize frozen blood.
- 120 Completed air-worthiness certification testing of self-contained ventilator.
- 100 Completed market investigation for intraosseous infusion device.
- 283 Completed technical evaluation of the medical-dental filmless imaging system.
- 2115 Demonstrated and validated off the shelf technologies to develop telemedicine hardware and concepts for the treatment of combat casualties.
- 61 SBIR/STTR programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.
- Total 2915

FY 1996 Planned Program:

- 52 Complete prototype electrochemical sterilization system.
- 179 Complete evaluation of dental filmless imaging system.
- 55 Evaluate concepts for development of expert medical systems for trauma management.
- 64 Demonstrate performance and safety of far forward suction device.
- 899 Modify US and allied military/commercial medical equipment used for patient examination, diagnosis and treatment in the field; incorporate technological advances into field medical equipment as they come on-line.
- 1344 Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts for the treatment of combat casualties.
- 8 Revised Economic Assumption not available for execution.
- 59 SBIR/STTR
- Total 2660

Project D836

Page 9 of 17 Pages

Exhibit R-2 (PE 0603807A)

631

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
4 - Demonstration and Validation	0603807A Medical Systems - Advanced Development	D836	
FY 1997 Planned Program:			
<ul style="list-style-type: none"> 712 Initiate programs and conduct human safety studies of a microencapsulated antibiotic (cephalosporin) and a silver nylon burn dressing for treatment of combat casualties. 258 Conduct user and technical testing of a system for life support and trauma transport. 191 Transition medical/dental imaging system to procurement. 1077 Modify US and allied military and commercial medical equipment used for patient examination, diagnosis and treatment in the field; incorporate technological advances into field medical equipment as they come on-line. 667 Demonstrate and validate off the shelf technologies to develop telemedicine hardware and concepts for the treatment of combat casualties. 			
Total	2905		
B. Project Change Summary			
Previous President's Budget Request (FY 1996)		FY 1995	FY 1996
Appropriated Amount (FY 1995)		2923	2734
Adjustments to FY 1995		2862	3008
Appropriated Amount (FY 1996)		53	
Adjustments to FY 1996		2686	
Adjustments to Budget (FY 1997) year since FY 1996		-26	
Presidents Budget			-103
Current Budget Submit For FY 1997		2915	2905
C. Other Program Funding Summary: Not Applicable			
D. Schedule Profile: Multiple medical developmental products will advance through various events throughout the FY.			
		FY 1995	FY 1996
		1	2
		3	4
		1	2
		3	4
		1	2
		3	4
Silver Nylon Burn Dressing MLST 0			
Microencapsulated Antibiotic			
Cephalosporin MLST 0/1			
Self-Contained Ventilator MLST 1/3 IPR			
Medical-Dental Filmless Imaging System			
MLST 2 IPR			
Intraosseous Infusion Device MLST 1 IPR			
Project D836			
Page 10 of 17 Pages			
Exhibit R-2 (PE 0603807A)			

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603807A Medical Systems - Advanced Development

D836

A. Project Cost Breakdown

Test and Evaluation	FY 1995	FY 1996	FY 1997
	249	741	579
Product Development	1971	1098	1951
Project Management	695	754	375
Total	2915	2593	2905

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	FY 1998	Budget to Complete	Total Program
Product Development Organizations											
Contracts	NA	NA	NA	NA	NA	1336	806	1494		Cont	Cont
USAMMDA	NA	NA	NA	NA	NA	635	292	457		Cont	Cont
Support and Management Organizations											
USAMMDA	NA	NA	NA	NA	NA	442	616	300		Cont	Cont
Contracts	NA	NA	NA	NA	NA	211	138	75		Cont	Cont
Test and Evaluation Organizations											
Army Laboratories	NA	NA	NA	NA	NA	249	741	579		Cont	Cont

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

NA	1971	1098	1951
NA	695	754	375
NA	249	741	579
NA	2915	2593	2905

Cont	Cont	Cont	Cont
Cont	Cont	Cont	Cont
Cont	Cont	Cont	Cont
Cont	Cont	Cont	Cont

Project D836

Page 11 of 17 Pages

Exhibit R-3 (PE 0603807A)

633

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603807A Medical Systems - Advanced Development								D837	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D837	Soldier System Protection-Advanced Development	0	1185	835	829	857	845	838	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Project D837-Soldier System Protection-Advanced Development: This project supports demonstration and validation of preventive medicine materiel, including devices, pharmacologicals and other tools, to provide protection, sustainment, and enhancement of the physiological and psychological capabilities of soldiers in the face of combat operations under all environmental conditions. Focus is on reduction in the incidence of personnel losses due to preventable disease and non-battle injuries through development of environmental and physiological performance monitors and other preventive medicine countermeasures.</p> <p>Acquisition Strategy: Test and evaluate materiel in government managed trials to meet fielding requirements.</p> <p>FY 1995 Accomplishments: Project not funded.</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 34 Develop coupling attachments for feasibility study on M-40 protective mask blower as an improved air circulation source for chemical warfare agent protective patient wrap; develop alternative air sources using non-development item acquisition strategy. • 234 Initiate programs and conduct human safety and efficacy studies of performance enhancing drugs melatonin and caffeine. • 887 Demonstrate Digital Field Medical Treatment Facility telemedicine appliqué. • 3 Revised Economic Assumption not available for execution. • 27 SBIR/STTR Total 1185 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 32 Conduct physiological testing of candidate air circulation source for chemical warfare agent protective patient wrap. • 250 Conduct expanded human safety and efficacy studies of performance enhancing drugs. • 553 Validate far-forward telemonitoring and Mobile Medical Mentoring vehicle tactical telemedicine appliqué through participation in digital Force XXI Bde-Corps Advanced Warfighting Exercise. Total 835 											

Exhibit R-2 (PE 0603807A)

Page 12 of 17 Pages

634

UNCLASSIFIED

Project D837

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603807A Medical Systems - Advanced

D837

Development

B. Project Change Summary

Previous President's Budget Request (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget (FY 1997) year since FY 1996

Presidents Budget

Current Budget Submit For FY 1997

FY 1995

0

0

FY 1996

1218

FY 1997

864

1197

-12

-29

0

1185

835

C. Other Program Funding Summary: Not Applicable**D. Schedule Profile:** Multiple medical developmental products will advance through various events throughout the FY.

Project D837

Page 13 of 17 Pages

Exhibit R-2 (PE 0603807A)

635

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

March 1996

PE NUMBER AND TITLE

0603807A Medical Systems - Advanced

Development

D837

Exhibit R-3 (PE 0603807A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603807A Medical Systems - Advanced Development

D993

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D993 Medical Defense Against Chemical Threats *	4679	0	0	0	0	0	0	0	11525

A. Mission Description and Budget Item Justification: Project D993-Medical Defense Against Chemical Threats: This project funds advanced development of countermeasures for chemical agents including life support equipment, pretreatment and therapeutic drugs, and individual/casualty decontamination compounds. A system of medical defense against chemical agents is required to provide individual soldiers protection, to sustain their performance in a chemical environment, and to provide for self-aid and medical treatment of chemical casualties. Major contractors include Battelle Memorial Institute, Columbus, OH, SRI International, Menlo Park, CA, and University of Illinois, Chicago, IL.

Acquisition Strategy: Multiple products-test and evaluate in government managed trials, in-house developed drugs and skin protectants.

FY 1995 Accomplishments:

- 286 Conducted extensive non-clinical (primate) studies of efficacy of nerve agent antidote HI-6; terminated development.
- 967 Conducted human safety studies of topical skin protectant; initiated Phase II studies to demonstrate effectiveness against mild vesicating agents.
- 81 Conducted technical testing of the multichambered autoinjector.
- 1108 Initiated development program for anti-cyanide.
- 193 Tested commercial products for use in the chemical protective patient wrap.
- 67 Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.
- 1977 Demonstrated and validated off the shelf technologies to develop telemedicine hardware and concepts.

Total 4679

FY 1996 Planned Program: Project moved to DoD PE 0603384BP, Project 993.

FY 1997 Planned Program: Project moved to DoD PE 0603884BP, Project MC4.

Project D993

Page 15 of 17 Pages

Exhibit R-2 (PE 0603807A)

637

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
4 - Demonstration and Validation	0603807A Medical Systems - Advanced Development		D993
B. <u>Project Change Summary</u>			
Previous President's Budget Request (FY 1996)	FY 1995	FY 1996	FY 1997
Appropriated Value	6071	0	0
Adjustments to Appropriated Value	6004		
Adjustments to Budget (FY 1997) year since FY 1996	-1325		
Presidents Budget			
Current Budget Submit For FY 1997	4679	0	0
Change Summary Explanation:			
Funding: Funds were reprogrammed to Army PE 0604807, Project A848 to conduct studies on pyridostigmine bromide to address questions and concerns on drug interaction and gender related differences arising out of Operation Desert Storm.			
Technical: Planned development effort for the second generation nerve agent antidote system (NAAS(HI-6)) was terminated at a special IPR based on the member's assessment of the high regulatory and fiscal risk associated with fielding, and the failure of the system to produce a significantly greater level of protection than the currently fielded item (2-PAM/ATR).			
C. <u>Other Program Funding Summary:</u> Not Applicable			
D. <u>Schedule Profile:</u> Multiple medical developmental products will advance through various events throughout the FY.			
Project D993		Exhibit R-2 (PE 0603807A)	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

4 - Demonstration and Validation

0603807A Medical Systems - Advanced
Development

PROJECT

D993

A. Project Cost Breakdown

Test & Evaluation

Product Development

Project Management

Total

FY 1995	FY 1996	FY 1997
2228	0	0
638	0	0
1813	0	0
4679		

B. Budget Acquisition History and Planning InformationPerforming Organizations

Contractor or Contract

Method/Type

Award or

Obligation

Date

Performing

Activity

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

Project

Office

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

Total

Prior to

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

Total

Prior to

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

Total

Prior to

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

Total

Prior to

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

Total

Prior to

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

Total

Prior to

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

Total

Prior to

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

Total

Prior to

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

Total

Prior to

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

FY 1995

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									
4 - Demonstration and Validation		0603854A Artillery Systems Demonstration and Validation									
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		0	0	258771	326525	296659	42983	0	0	924938	
D505 Crusader - Advanced Development		0	0	255916	324285	296054	42983	0	0	919238	
DC68 Tractor Yeoman		0	0	2855	2240	605	0	0	0	5700	

Mission Description and Budget Item Justification: This Program Element supports the Demonstration and Validation efforts for the Crusader - AD Program, formerly called Advanced Field Artillery System (AFAS) and Future Armored Resupply Vehicle (FARV), the Army's next generation indirect fire cannon and artillery resupply system for the heavy force. Formally, these efforts were included in PE 0603645A, Armored Systems Modernization (ASM) Advanced Development as Projects D409 AFAS-AD, DB88 FARV-AD. This Program Element focuses on efforts associated with the technology demonstration and validation of Crusader (AFAS and FARV) and is correctly placed in Budget Activity 4. This single project combines both Crusader SPH-AD (D409) and Crusader RSV-AD (DB88) into one line in FY97 based upon the 15 Nov 94 Defense Acquisition Board (DAB) Review. The Crusader system is the Army's next generation self-propelled howitzer (SPH) and resupply vehicle (RSV). Crusader will have significantly increased capabilities in the areas of lethality, mobility, survivability, resupply, command and control, and sustainability by capitalizing on emerging, advanced technologies. The SPH will also achieve increased lethality levels through independent mission execution. The RSV will have significantly increased capabilities in the areas of resupply, mobility and survivability and will provide a single source of ammunition, fuel, propellant and other supplies for the SPH.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
4 - Demonstration and Validation		0603854A Artillery Systems Demonstration and Validation								D505	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D505	Crusader - Advanced Development	0	0	255916	324285	296054	42983	0	0	919238	
<p>A. Mission Description and Budget Item Justification: This project supports the Demonstration and Validation efforts for the Crusader - AD Program, formerly called Advanced Field Artillery System (AFAS) and Future Armored Resupply Vehicle (FARV), the Army's next generation indirect fire cannon and artillery resupply system for the heavy force. Formally, these efforts were included in PE 0603645A, Armored Systems Modernization (ASM) Advanced Development as Projects D409 AFAS-AD, DB88 FARV-AD. This Program Element focuses on efforts associated with the technology demonstration and validation of Crusader (AFAS and FARV) and is correctly placed in Budget Activity 4. This single project combines both Crusader SPH-AS (D409) and Crusader RSV-AD (DB88) into one line in FY97 based upon the 15 Nov 94 Defense Acquisition Board (DAB) Review. The Crusader system is the Army's next generation self-propelled howitzer (SPH) and resupply vehicle (RSV). Crusader will have significantly increased capabilities in the areas of lethality, mobility, survivability, resupply, command and control, and sustainability by capitalizing on emerging, advanced technologies. The SPH will also achieve increased lethality levels through independent mission execution. The RSV will have significantly increased capabilities in the areas of resupply, mobility and survivability and will provide a single source of ammunition, fuel, propellant and other supplies for the SPH.</p> <p>FY 1995 Accomplishments: See Projects D409 and DB88 in PE 0603645A for accomplishments.</p> <p>FY 1996 Planned Program: See Projects D409 and DB88 in PE 0603645A planned program.</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 232897 Product Development: Continue developmental efforts under the Crusader Developmental Phases I & II Contract; continue efforts in support of maturation and integration of critical technologies. Initiate prototype fabrication and demonstration. Conduct system design review. Conduct Phase I IPR (PEO-IPR). 20140 Support and Management: Continue project management efforts, to include scientific and engineering analysis, product development team support, and engineering management services. 2879 Test and Evaluation: Purchase propellant, ammunition and fuzes required for the initiation of EDT-A testing; begin EDT-A testing. <p>Total 255916</p>											

Project D505

Page 2 of 5 Pages

Exhibit R-2 (PE 0603854A)

641

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

4 - Demonstration and Validation

0603854A Artillery Systems Demonstration and

D505

Validation

A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997
Product Development		232897	
Support and Management		20140	
Test and Evaluation		2879	
Total		255916	

B. Budget Acquisition History and Planning Information**Performing Organizations**

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
United Defense, Minneapolis, MN	SS/CPIF	Sep 94	TBD	TBD				219817	568823	788640
AMCCOM, Picatinny Arsenal, NJ, Watervliet, Arsenal, NY, Rock Island Arsenal, IL								9280	19770	29050
ARL, Aberdeen Proving Ground, MD, Watertown, MA								600	1470	2070
Various other OGA's and Contractors								3200	7300	10500
Support and Management Organizations										
PM, Crusader, Picatinny, NJ								8100	17900	26000

Project D505

Page 4 of 5 Pages

Exhibit R-3 (PE 0603854A)

643

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	March 1996	PROJECT			
BUDGET ACTIVITY		PE NUMBER AND TITLE			D505					
4 - Demonstration and Validation		0603854A Artillery Systems Demonstration and Validation								
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
AMCCOM, Picatinny Arsenal, NJ								7000	15800	22800
Various OGA's and Contractors								5040	11250	16290
Test and Evaluation Organizations								2879	21009	23888
TECOM, Yuma Proving Grds, AZ, CSTA, APG, MD										
Government Furnished Property: None										
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project										
					232897			20140	597363	830260
								2879	44950	65090
								255916	21009	23888
									663322	919238

Project D505

Page 5 of 5 Pages

Exhibit R-3 (PE 0603854A)

Project D505

Page 5 of 5 Pages

Exhibit R-3 (PE 0603854A)

644

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603856A SCAMP BLK II (Space)

PROJECT

D389

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D389 SCAMP BLK II *	0	0	8080	9302	3663	10530	26434	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D389 - SCAMP BLK II. The Single Channel Anti-Jam Manportable (SCAMP) BLK II Terminal will be a manpackable, satellite terminal to be employed by units that require range extension for command and control communications. Block II will be used by priority ground tactical users to transmit and receive intelligence, command and control traffic from a base station. It will transmit in the Extremely High Frequency (EHF) band and receive in the Super High Frequency (SHF) band. It will provide Low Data Rate (LDR) secure voice at 2400 bps and secure data at 75-2400 bps, as well as interface with Common Hardware/Software devices such as the Lightweight Computer Units and the Hand-Held Terminal Unit. The SCAMP BLK II will have embedded COMSEC, TRANSEC and GPS. In addition to operation on Milstar satellites, the SCAMP will operate on all satellites which utilize the MIL-STD-1582C LDR waveform. It will operate in the transmit, receive or standby mode throughout an entire mission (typically 30 days). SCAMP BLK II EHF terminal will provide direct support to the tactical warfighter mobile forces with anti-jam protection, low probability of intercept, and low probability of detection. It will have a paging capability and biological/chemical protection. Engineering Feasibility Efforts (EFE) to develop the SCAMP BLK II in the range of 12-15 pounds was approved in the Acquisition Decision Memorandum. EFE began in FY96 and will continue through FY99. These efforts will provide confidence in technical approach and lead to a Milestone II/III Engineering Manufacturing Phase. Project D389 is not a new start; it was restructured from P.E. 0303142A.D386 to P.E. 0603856A.D389. This project provides for the demonstration and validation of advanced technologies and is therefore appropriately funded in Budget Activity 4.

Acquisition Strategy: SCAMP BLK II will be a manpackable terminal in the 12-15 lb. range. SCAMP BLK II began Engineering Feasibility Efforts (EFE) in FY96 placing emphasis on downsizing the following subsystems: Radio Frequency (RF) Generator, Digital Processor, Transmitter and Antenna. These subsystems will utilize technologies such as Millimeter Microwave Integrated Circuits (MIMIC), custom Very Large Scale Integrated Circuits (VLSIC) and increased efficiency power devices. Further weight savings and power efficiency increases will investigate battery technology and lightweight composite materials. The EFE efforts will lead to the Engineering Manufacturing Phase to begin in FY00.

* \$5.8M SCAMP BLK II Engineering Feasibility Efforts (EFE) reported under 0303142A.D386 in FY 1996

FY 1995 Accomplishments: No planned program.

FY 1996 Planned Program: FY 1996 efforts funded under PE 0303142A.D386 (See asterisked note above)

Project D389

Page 1 of 3 Pages

Exhibit R-2 (PE 0603856A)

645

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
4 - Demonstration and Validation	0603856A SCAMP BLK II (Space)	D389		
FY 1997 Planned Program:				
• 6220	Implements integration of Engineering Feasibility Efforts (EFE) for functional prototype terminals			
• 800	Continues paging prototype system efforts			
• 1060	Continues Advanced Research Project Agency (ARPA) advanced communications technologies and the Joint Automated Communications Management System efforts			
Total	8080			
B. Project Change Summary				
Previous President's Budget		FY 1995	FY 1996	FY 1997
Appropriated Amount (FY 1995)		0	0	0
Adjustment to FY 1995				
Appropriated Amount (FY 1996)				
Adjustment to FY 1996				
Adjustments to Budget Year (FY 1997) since FY 1996				+8080
President's Budget				
Current President's Budget Submit		0	0	8080
Change Summary Explanation:				
Funding: FY97: Not a new start. (+8310) Funds restructured to 0603856A.D389 from 0303142A.D386 and (-230) reduced due to revised inflation rates.				
C. Other Program Funding Summary : Not Applicable				
D. Schedule Profile				
		FY 1995	FY 1996	FY 1997
1	2	3	4	1
				2
				3
				4
Continue EFE				X
Project D389				
Page 2 of 3 Pages				
Exhibit R-2 (PE 0603856A)				

646

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	March 1996	PROJECT D389
BUDGET ACTIVITY		PE NUMBER AND TITLE						
4 - Demonstration and Validation		0603856A SCAMP BLK II (Space)						
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997				
Contractor				2682				
Government Systems Engineering and Project Management				5398				
Total				8080				
B. Budget Acquisition History and Planning Information								
Performing Organizations								
Contractor or Contract								
Government Method/Type								
Performing Activity								
Award or Obligation Date								
Performing Activity EAC								
Total Prior to FY 1995								
Product Development Organizations								
Other Contracts								
Govt Support								
Support and Management Organizations								
Other Contracts								
Core Support								
Lincoln Labs								
Lab Activities								
Test and Evaluation Organizations: None								
Government Furnished Property: None								
Subtotal Product Development								
Subtotal Support and Management								
Subtotal Test and Evaluation								
Total Project								

Project D389

Page 3 of 3 Pages

Exhibit R-3 (PE 0603856A)

647

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604201A Aircraft Avionics								DC97	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DC97 Aircraft Avionics		14059	21442	15008	14787	1335	0	0	0	66631	

A. Mission Description and Budget Item Justification: This Program Element funds the development of avionics systems required to horizontally and vertically integrate the battlefield (commonly referred to as "digitization of the battlefield"). The following tasks in this PE support research efforts in the engineering and manufacturing development phases of these digitization of the battlefield systems and are, therefore, correctly placed in Budget Activity 5.

Project DC97 - Aircraft Avionics:

- The Global Positioning System (GPS) provides Army aviation with extremely accurate and secure location and velocity information critical to navigation, target acquisition, fire support, assessment of enemy deployments, and logistical support. It also provides Global Time settings for communication systems and assists in situational awareness and prevention of fratricide. The RDT&E efforts address the Army aircraft weight, space and power limitations by embedding a GPS circuit card into existing onboard avionics systems. In addition, tasks were initiated for the Embedded Inertial Navigation System (EGI) (Air Force lead) for attack and scout aircraft.
- The AN/ARC-220 Nap-Of-Earth (NOE) Communications High Frequency (HF) radio provides a long-range (300 kilometers), non-line-of-sight digital and voice communication capability which is reliable, secure, easy to operate, with automatic link establishment and electronic counter-countermeasures. The AN/ARC-220 will be form/fit interchangeable with the AN/ARC-199 HF radio, meet military standards for compatibility with the 1553 data bus, night vision lighting, data transmission, and shipboard operations.
- The Army Airborne Command And Control System (A2C2S) functions as a highly mobile command post. When mounted in the UH-60 helicopter with auxiliary equipment, it provides tactical voice, data, and imagery digitized battlefield communications both in secure and nonsecure modes for corps, division, and brigade commanders. The system provides battle commanders access to critical situational awareness and off-board national asset intelligence information via satellite communications. It also provides digitized battlefield communications links with Army combined arms team members, joint service and combined force elements, and intercommunications facilities for up to six operators, and joint interoperability as well as maritime and air traffic control communications. The A2C2S is in response to real world needs of combat maneuver commanders to perform highly mobile and responsive digital, voice, and imagery command and control (C2) functions in the UH-60 helicopter. The UH-60 A2C2S system will enable the commander and essential staff to remain highly mobile with the capability to interject critical C2 across the designated battle area without sacrificing access to information products or jeopardizing continuity of operations due to command post relocation. Interoperability is enhanced with this system by providing the capability to communicate digitally with Navy or Air Force close air support as well as relaying target information. This system will allow Army aviation forces access to C2 and situational awareness information for conduct of close, deep, rear, and security operations. The A2C2S is used to provide C2 for disaster relief, peacekeeping, drug interdiction, and both low and high intensity conflict missions. The A2C2S will play a major role in eliminating costly fratricide incidents via the capability to closely monitor and control operations. Satellite communications provide access to tactical communication systems and enables communication with the force and command structure from Joint Chiefs of Staff (JCS) down to battalion when required.

Project DC97

Page 1 of 6 Pages

648

Exhibit R-2 (PE 0604201A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604201A Aircraft Avionics

PROJECT

DC97

Acquisition Strategy: This project is comprised of multiple programs. The AN/ARC-220 development was competitively awarded on a fixed price contract to Rockwell Collins in July 1994. The GPS EGI production contract for the Army was competitively awarded to Honeywell in March 1994. The integration effort for the GPS EGI was awarded on a modification to the Longbow development contract with McDonnell Douglas in December 1994. The A2C2S is being developed by the Naval Research Laboratory. The A2C2S production contract will be competitively awarded.

FY 1995 Accomplishments:

- 3500 Continued AN/ARC-220 NOE Communications HF Radio Engineering and Manufacturing Development (EMD) Effort
- 2139 Initiated Preproduction Qualification and continue Project Management Support for AN/ARC-220 NOE Communications HF Radio
- 300 Conducted Non-Recurring Engineering for EGI (AH-64D)
- 3400 Completed AH-64D Engineering Change Proposal EGI Integration
- 4720 Continued A2C2S Joint Combat Information Terminal (JCIT)/Work Station Design: Prototype and Demonstration
- Total 14059

FY 1996 Planned Program:

- 4510 Initiate Integration Contracts for Design of A Kit and Testing for AN/ARC-220 NOE Communications HF Radio
- 507 Continue Program Management support for the AN/ARC-220
- 8863 Initiate development of Enhanced JCIT: 6 A2C2S prototypes
- 311 Continue Design and Development of A2C2S Workstation Consoles
- 538 Develop Technical Documentation: Test and Integration procedures for A2C2S Engineering Development Model (EDM)
- 30 Develop A2C2S Workstation Software
- 451 Continue development of A2C2S Antenna Interface Module (AIM) - Phase II
- 3710 Initiate Test and Demonstration - A2C2S EDM
- 1597 Continue Program Management support for the A2C2S
- 386 Initiate Systems Engineering, Logistics processes for A2C2S
- 61 Revised Economic Assumption not available for execution
- 478 SBIR/STTR
- Total 21442

FY 1997 Planned Program:

- 9158 Continue Development of Enhanced JCIT, Workstation Consoles and other A2C2S Prime Mission Equipment
- 198 Continue Development of A2C2S Antenna Interface Module (AIM)
- 1224 Continue Development of A2C2S Workstation Software
- 553 Continue Test & Integration Procedures for A2C2S Engineering Development Model (EDM)

Project DC97

Page 2 of 6 Pages

Exhibit R-2 (PE 0604201A)

649

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	MARCH 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE							
5 - Engineering and Manufacturing Development	0604201A Aircraft Avionics							DC97
FY 1997 Planned Program: (continued)								
• 1957 Continue System Engineering, Logistics, and Technical Documentation for A2C2S								
• 1918 Continue Program Management Support for the A2C2S								
Total	15008							
B. Project Change Summary								
Previous President's Budget Request (FY 1996)								
Appropriated Value (FY 1995)								
Adjustments to FY 1995 Appropriated Value								
Appropriated Value (FY 1996)								
Adjustments to FY 1996 Appropriated Value								
Adjustments to Budget Year (FY 1997) Since								
FY 1996 Presidents Budget								
Current Budget Estimate Submission								
Change Summary Explanation: Funding: FY 95: Reprogramming (+120) required for the Aviation Applied Technology Directorate (AA TD) development support of the A2C2S. FY 96: (-216) reflects revised economic assumptions. FY 97: (+12971) increase is required for continued development of A2C2S prototypes.								
C. Other Program Funding Summary								
Aircraft Procurement, Army (APA):								
Airborne Avionics - AA0700 BLIN 1022*								
Airborne Communications -AA0705 BLIN 1034								
Airborne Command and Control Console AA0710								
BLIN 1027								
*Represents only part of the funds in AA0700.								
D. Schedule Profile:								
Completed EGI Non-recurring Engineering for AH-64								
EGI Integration on AH-64D/C (ECP)								
Continued AN/ARC-220 NDI EMD Effort								
Initiated Preproduction Qualifications - AN/ARC-220 HF radio								
Project DC97								
Page 3 of 6 Pages								
Exhibit R-2 (PE 0604201A)								

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996	PROJECT									
BUDGET ACTIVITY										PE NUMBER AND TITLE										PROJECT	
5 - Engineering and Manufacturing Development										0604201A Aircraft Avionics										DC97	
D. Schedule Profile:										FY 1996										FY 1997	
										FY 1995				FY 1996				FY 1997			
										1	2	3	4	1	2	3	4	1	2	3	4
Initiated Integration Contract-A Kit Design and Test - AN/ARC-220 HF radio																					
Complete AN/ARC-220 NDI EMD Effort														X							
Continued A2C2S JCIT Work Station Design - Prototype and Demonstration										X											
Initiate Development of Enhanced JCIT Prototypes														X							
Continue Design and Development of A2C2S Workstation Consoles														X							
Develop Technical Documentation - A2C2S Test and Integration Procedures														X							
Initiate A2C2S Prototype Integration														X							
Initiate A2C2S Workstation Software Development														X							
Initiate A2C2S Tests and Demonstrations														X							
Continue development of A2C2S Antenna Interface Module													X								
Initiate A2C2S Systems Engineering, Logistics Processes															X						
Continue development of Enhanced JCIT, Work Station Consoles and other Prime Mission Equipment																		X			
Continue development of A2C2S Antenna Interface Module																		X			
Continue development of A2C2S Workstation Software																		X			
*Denotes Milestone Completion																					

Project DC97

Page 4 of 6 Pages

Exhibit R-2 (PE 0604201A)

Project DC97

Page 4 of 6 Pages

Exhibit R-2 (PE 0604201A)

651

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	PROJECT
BUDGET ACTIVITY						
5 - Engineering and Manufacturing Development						
PE NUMBER AND TITLE						
0604201A Aircraft Avionics						
A. Project Cost Breakdown						
Product Development	FY 1995	FY 1996	FY 1997			
	13174	18112	13490			
Program Management Support:						
Government In-House Support	885	1841	918			
Contract		950	600			
SBIR/STTR/Economic Assumption		539				
Total	14059	21442	15008			
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or	Method/Type	Award or	Performing	Project	Total	
Government	or Funding	Obligation	Activity	Office	Prior to	
Performing	Vehicle	Date	EAC	EAC	FY 1995	
Activity					FY 1996	
					FY 1997	Total
						Program
Product Development Organizations						
Rockwell	FFP/OPT	Aug 94	10966	10966	3500	10966
International						
Corporation Cedar						
Rapids, IA						
McDonnell	SS/CPIF	Apr 96	4510	4510	4510	4510
Douglas						
McDonnell	SS/CPIF	Oct 94	3400	3400	3400	3400
Douglas (EGI)						
Honeywell (EGI)	FFP/OPT	Mar 95	300	300	300	300
Naval Research	MIPR	1Q97	49443	49443	4600	49443
Laboratory						
Aviation Applied	MIPR	1Q97	3420	3420	120	3420
Technology					50	
Directorate					900	1100
					1250	3420

Project DC97

Page 5 of 6 Pages

Exhibit R-3 (PE 0604201A)

Exhibit R-3 (PE 0604201A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PROJECT

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604201A Aircraft Avionics

DC97

Contractor or Contract

Contractor or Contract	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Government Performing Activity	MIPR	1Q97	1441	1441			491	450	500	1441
Support and Management Organizations										
Aviation										
Electronic Combat										
PM										
Communications and Electronics	MIPR	1Q97	4663	4663	2014	1412	737	200	300	4663
Command										
USA Aviation and Troop Command	MIPR	1Q97	1773	1773		727	296	300	450	1773
SBIR, STTR, and Economic Assumption										
Test and Evaluation Organizations: None										
Government Furnished Property: Not Applicable										
Subtotal Product Development					11810	11920	19379	14058	14872	72039
Subtotal Support and Management					2014	2139	2063	950	1250	8416
Subtotal Test and Evaluation										
Total Project					13824	14059	21442	15008	16122	80455

Project DC97

Page 6 of 6 Pages

Exhibit R-3 (PE 0604201A)

653

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604220A Armed, Deployable OH-58D								D538	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D538	Crew Station Mission Equipment Trainer (CSMET)	0	706	1154	0	0	0	0	0	1860	

A. Mission Description and Budget Item Justification: The Crew Station Mission Equipment Trainer (CSMET) is a desktop simulation training device that will be designed to support training requirements for the OH-58D Kiowa Warrior flight crew. The CSMET effort responds to the lack of Training Devices, Simulators or Simulations (TDSS) available to fielded Kiowa Warrior units. Currently, the aircraft itself provides the only primary sustainment training device. Training provided through the use of the actual aircraft is at best limited due to the inability to employ total system capabilities under combat conditions i.e. weapon systems. When the actual aircraft are not available the aviator cannot continue to practice crew skills and as such the aircrew skills continue to decay rapidly. Maintaining a high level of aircrew skill has direct impact on combat readiness and proficiency. The CSMET will support refresher and sustainment training of those skills required to initialize, operate and employ the weapons systems, aviation survivability equipment, automatic target handover system, communication and navigation equipment, mast mounted sight, data transfer system, Aviator Night Vision Imaging System (ANVIS) display and airborne video tape recorder. The CSMET will network with other simulation devices for collective training. The project in this Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is, therefore, correctly placed in Budget Activity 5.

Acquisition Strategy: The acquisition strategy is based primarily on the integration of Government-furnished data and commercially available non-developmental items. Government-owned OH-58D Kiowa Warrior Cockpit Procedures Trainer Ada software will be integrated into the computer and image generator hardware of choice based on maximum compatibility and interoperability with other aviation simulation systems. Acquisition will be accomplished in four phases -- pre-prototype, prototype, production, and support/sustainment -- and will be accomplished utilizing an Integrated Product Team approach among various Government agencies.

FY 1995 Accomplishments: Project not funded

FY 1996 Planned Program:

- 688 Award Development Contract-Initiate development/build of prototype device
- 2 Revised Economic Assumption not available for execution
- 16 SBIR/STTR
- Total 706

Project D538

Page 1 of 3 Pages

Exhibit R-2 (PE 0604220A)

654

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development	0604220A Armed, Deployable OH-58D			D538
A. <u>Project Cost Breakdown</u>				
Engineering Development				
Prototype Build/System Integration				
Developmental Testing				
Government Support of Developmental Testing				
Operational Testing				
Government Support of Operational Testing				
Total				
	FY 1995	FY 1996	FY 1997	
		706	718	
			119	
			29	
			189	
			99	
		706	1154	
B. <u>Budget Acquisition History and Planning Information:</u> Not Applicable				

Project D538

Page 3 of 3 Pages

Exhibit R-3 (PE 0604220A)

656

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604223A Comanche

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	474912	290936	288644	288790	384224	454294	601552		Continuing
DC72 T800 Engine Engineering Development (LH)	66726	35830	35616	35663	35531	35384	35073		Continuing
D2LT Comanche Operational Test	0	0	0	0	0	0	190		Continuing
D327 Comanche	408186	255106	253028	253127	348693	418910	566289		Continuing

Mission Description and Budget Item Justification: This program element provides for the development and operational testing and evaluation of the RAH-66 Comanche and the T800 growth engine. The Comanche is a multi-mission aircraft optimized for the critical battlefield mission of tactical armed reconnaissance. It provides a globally self-deployable attack platform for light/contingency forces. Comanche is the solution to the reconnaissance deficiencies (no night/adverse weather/high/hot/stand-off capability) and is a key component on the digitized battlefield in winning the information war. The Comanche will replace the obsolescent Vietnam era fleet (AH-1, OH-6, and OH-58A/C). Project DC72 provides for development and qualification of the T800 and growth engines and air vehicle support for integration of the same into the Comanche aircraft. Project D2LT includes funding for the operational testing of Comanche to include Comanche simulation accreditation for Limited User Test and Initial Operational Test & Evaluation. Project D327 provides for development of the airframe, mission equipment package, and integration of the whole system to include training and logistic support. The projects in this program element support research efforts that complete Demonstration/Validation (Dem/Val) prototype efforts and transition to the engineering and manufacturing development phase of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604223A Comanche								DC72	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DC72	T800 Engine Engineering Development (LH)	66726	35830	35616	35663	35531	35384	35073	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Project DC72 - T800 Engine Engineering Development (LH): This project includes tasks to design, develop and qualify an advanced technology engine. The project is for the development of a growth T800 engine, utilizing the technology developed and qualified on the 1200 SHP class baseline T800 engine. The growth engine is for the Army's new RAH-66 Comanche and other applications.</p> <p>Acquisition Strategy: Continue work with current contractor leading to FAA certification, military qualification and eventual production.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 10700 Continued basic engine air vehicle support • 46085 Continued growth engine development • 9941 Continued contractor development testing Total 66726 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 8900 Continue basic engine air vehicle support • 16467 Continue growth engine development and conduct growth engine Critical Design Review (CDR) • 9578 Continue contractor development testing • 784 SBIR/STTR • 101 Revised Economic Assumption-not available for execution Total 35830 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 8600 Continue basic engine air vehicle support • 14119 Continue growth engine development • 12897 Continue contractor development testing Total 35616 											

Project DC72

Page 2 of 10 Pages

Exhibit R-2 (PE 0604223A)

658

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604223A Comanche

DC72

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current Budget Estimate Submission

FY 1995

80162

78495

-11769

FY 1996

36835

36192

-362

FY 1997

36840

-1224

35830

35616

Change Summary Explanation:

Funding: FY 1995 (-11769) reflects Congressionally approved reprogramming to Project D327.

FY 1996 (-362) reflects revised economic assumptions.

FY 1997 (-1224) reflects revised economic assumptions.

C. Other Program Funding Summary:

There are no other related RDT&E or other appropriation efforts.

D. Schedule Profile

	1	2	3	4	1	2	3	4	1	2	3	4
Continue basic engine air vehicle support	X*											
Continue contractor development testing	X*											
Continue growth engine development	X*											
Award change order for (EOC) program				X*								
Continue basic engine air vehicle support							X					
Continue growth engine development							X					
Continue contractor development testing							X					
Continue basic engine air vehicle support									X			
Continue growth engine development									X			
Continue contractor development testing									X			

* Milestone Completed

Project DC72

Page 3 of 10 Pages

Exhibit R-2 (PE 0604223A)

659

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE									
5 - Engineering and Manufacturing Development		0604223A Comanche									DC72
A. Project Cost Breakdown											
Product Development		FY 1995	FY 1996	FY 1997							
		66475	34810	35416							
Program Management Support		247	1016	196							
Government Furnished Personnel/Equipment/Facilities		4	4	4							
Test & Evaluation		0	0	0							
Total		66726	35830	35616							
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or	Contract	Method/Type	Award or	Performing	Project	Total					
Government		or Funding	Obligation	Activity	Office	Prior to					
Performing		Vehicle	Date	EAC	EAC	FY 1995	FY 1996	FY 1997	Budget to	Total	
Activity									Complete	Program	
Product Development Organizations (includes contractor testing)											
LHTEC (0453)	C/CPFF	April 92			536293	90366	66000	34810	35416	Cont	
LHTEC (B017)	C/FFP	Jul 85		276821	276821	276346	475	0	0	276821	
LHTEC(0518)	CPFF	Jul 93		460	460	460	0	0	0	460	
AVCO (B019)	C/FFP	Nov 84		128526	128526	128526	0	0	0	128526	
Support and Management Organizations											
Comanche PMO &	MIPR				12159	205	131	196	Cont	Cont	
Gov't Agencies											
PATS contracts	C/FFP				96	54	42	0	0	96	
Rail	C/FFP	Sep 87			2806	2806	0	0	0	2806	
SBIR/STTR							885				
Economic Assumpt											
Test and Evaluation Organizations											
Gov't Agencies	MIPR				9613	9613	0	0	0	9613	

Project DC72

Page 4 of 10 Pages

Exhibit R-3 (PE 0604223A)

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604223A Comanche

DC72

Government Furnished Property

Contract

Item Description	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Property: None									
Support and Management Property									
Gov't Agencies									
Test and Evaluation Property: None									
				13129	4	4	4	Cont	Cont

Method/Type or Funding Vehicle

Award or Obligation Date

Delivery Date

Total

Prior to

FY 1995

FY 1997

Budget to

Complete

Total

Program

Product Development Property: None

Support and Management Property

Gov't Agencies

Test and Evaluation Property: None

MIPR

Total

Prior to

FY 1995

FY 1997

Budget to

Complete

Total

Program

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

FY 1995

66475

251

0

66726

FY 1996

34810

1020

0

35830

FY 1997

35416

200

0

35616

Cont

Cont

Cont

Cont

Cont

Project DC72

Page 5 of 10 Pages

Exhibit R-3 (PE 0604223A)

661

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604223A Comanche								D327	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D327	Comanche	408186	255106	253028	253127	348693	418910	566289	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Project D327 - Comanche: The Comanche helicopter is a highly sustainable and operationally flexible air cavalry system, incorporating significant reductions in personnel and support equipment, capturing the latest combat technologies and capable of accepting upgrades to meet ever-changing threats. It will dominate the battlefield in the close, deep and rear operations; provide a decisive air cavalry capability in day, night, and adverse weather. It will be operationally tailorable to regional conflicts and provide the battle commander with timely, detailed reconnaissance information and an unprecedented level of lethality.</p> <p>Acquisition Strategy: Continue work with current contractor leading to Engineering and Manufacturing Development and eventual production.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 284479 Continued Dem/Val prototype engineering development • 85999 Continued contractor development test • 37708 Continued air vehicle manufacturing on prototypes 1 and 2 Total 408186 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 25626 Begin digitization effort • 176096 Continue Dem/Val prototype engineering development • 38258 Conduct first flight, prototype # 1 and continue flight test program • 8806 Continue manufacturing of prototype # 2 • 5601 SBIR/STTR • 719 Revised Economic Assumption-not available for execution Total 255106 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 25138 Continue digitization effort • 168050 Continue Dem/Val prototype engineering development • 57387 Continue flight test program for prototype # 1 • 2453 Complete manufacturing of prototype # 2 Total 253028 											

Project D327

Page 6 of 10 Pages

Exhibit R-2 (PE 0604223A)

662

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY							DATE	PROJECT	
5 - Engineering and Manufacturing Development							March 1996	D327	
PE NUMBER AND TITLE									
0604223A Comanche									
D. Schedule Profile	FY 1995		FY 1996		FY 1997				
	1	2	3	4	1	2	3	4	
Continue air vehicle manufacturing	X*								
Continue Dem/Val prototype engineering development	X*								
Award change order for EOC program				X*					
Update TEMP				X*					
Continue Dem/Val prototype engineering development				X					
Begin digitization effort				X					
Conduct First Flight, Prototype # 1				X*					
Continue flight test program					X				
Continue digitization efforts							X		
Continue Dem/Val prototype engineering development							X		
Continue flight test program							X		
* Milestone completed									

Project D327

Page 8 of 10 Pages

Exhibit R-2 (PE 0604223A)

Project D327

Page 8 of 10 Pages

Exhibit R-2 (PE 0604223A)

664

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604223A Comanche

D327

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Product Development	382052	228764	233976
Program Management Support	24578	23938	16052
Government Furnished Personnel/Equipment/Facilities	372	1266	1000
Test & Evaluation	1184	1138	2000
Total	408186	255106	253028

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Contract

Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations (includes contractor testing)										
Boeing Sikorsky	C/CPF	April 91		5855400	1342906	382052	228764	233976	Cont	Cont
JPO A004					370288	0	0	0	0	370288
Other Completed Contracts										
Support and Management Organizations										
Rail	C/FFP	Sep 87		87000	27089	5865	5558	5500	Cont	Cont
SysTeam	C/FFP	Oct 91	15513	15513	9136	3325	3052	0	0	15513
PATS contracts	C/FFP				0	13	52	1552	Cont	Cont
Other Contracts	C/FFP				7369	4839	4027	4000	Cont	Cont
PMO/Gov't	MIPR				57271	10536	4929	5000	Cont	Cont
Agencies										
SBIR/STTR							6320			
Economic Assumpt										
Test and Evaluation Organizations										
Gov't Agencies	MIPR				6279	1184	1138	2000	Cont	Cont

Project D327

Page 9 of 10 Pages

Exhibit R-3 (PE 0604223A)

665

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development		06042223A Comanche				D327
Government Furnished Property						
Contract						
Item	Method/Type	Award or	Delivery			
Description	Vehicle	Obligation	Date			
Product Development Property: None						
Support and Management Property						
Other Gov't						
Agencies						
Test and Evaluation Property: None						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997						
Budget to						
Complete						
Total						
Prior to						
FY 1995						
FY 1995						
FY 1996						
FY 1997</						

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604270A Electronic Warfare (EW) Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	90925	63442	69474	56523	49452	17981	17939	Continuing	Continuing
DL12 Signals Warfare Development	49600	13692	16414	16223	9884	9993	11416	Continuing	Continuing
DL15 Army Reprogramming & Analysis Team (ARAT) for Target Sensing Systems (TSS)	3563	2903	3845	4331	3596	0	0	0	18250
DL16 TROJAN Development (TIARA)	0	531	1288	1363	1430	0	0	0	4612
DL18 High Value Asset Defense System	5686	7488	9348	0	0	0	0	0	22522
D665 Aircraft Survivability Equipment Development	32076	38828	38579	34606	34542	7988	6523	Continuing	Continuing

Mission Description and Budget Item Justification: This program element encompasses engineering and manufacturing development for tactical electronic warfare (EW), signals warfare (SW), aircraft survivability equipment (ASE), battlefield deception, rapid software reprogramming and protection of personnel and equipment from hostile artillery. EW encompasses the development of tactical EW equipment and systems mounted in both ground and air vehicles. The systems under this program provide the Army with the capability to degrade or deny hostile forces the effective use of their communications, countermortar/counterbattery radars, surveillance radars, infrared/optical battlefield surveillance systems and electronically fused munitions. Existing Army EW systems must be replaced or upgraded to maintain their capability in the face of threat technical advancements. This program element satisfies requirements for brigade, division, corps and higher commanders to conduct electronic warfare to meet tactical and Special Electronic Mission Aircraft (SEMA) requirements, attach/scout, and assault/cargo mission requirements. Signals Warfare Development provides for an integrated ground-based and airborne Intelligence and Electronic Warfare Common Sensor (IEWCS) System. The High Value Asset Defense System will provide effective protection of personnel and equipment from electronically fused munitions. TROJAN developments will complete Proof-of-Principle R&D for specific TROJAN applications in advanced threat signals processing and prototype software upgrades; high frequency (HF) algorithms for compact antenna array technology (CAT) configured into small aperture antenna arrays; search and acquisition capabilities for unattended signal collectors; and new digital intelligence collection, processing and dissemination technology. The ARAT Project will develop, test and equip an Army wide infrastructure capable of rapidly reprogramming electronic combat software embedded in offensive and defensive weapon systems. The projects in this PE are in the Engineering and Manufacturing Development phase of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	
BUDGET ACTIVITY										PROJECT	
5 - Engineering and Manufacturing Development										DL12	
PE NUMBER AND TITLE										March 1996	
0604270A Electronic Warfare (EW) Development										DL12	
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DL12 Signals Warfare Development		49600	13692	16414	16223	9884	9993	11416	Continuing	Continuing	

A. Mission Description and Budget Item Justification: Signals Warfare Development: Ground Base Common Sensor (GBCS), an intercept and emitter location system, provides division commanders with the capability to search, intercept, listen to, precisely locate for hard-kill or order-of-battle resolution, or render ineffective through electronic attack, threat command and control and fire control communications nets and identify and precisely locate threat countermortar and counterbattery ground surveillance radar emissions, and identify enemy conventional and Low Probability of Intercept (LPI) communications and noncommunications emitters and jam enemy conventional and LPI communications emitters. GBCS is an evolutionary, open architecture system which satisfies the Army requirement to conduct tactical ground Communications Intelligence, Electronic Intelligence, Electronic Support, and Electronic Attack against threat communications and noncommunications signals; enhances the Commander's ability to outmaneuver and destroy the enemy by locating or jamming threat command and control, fire control, and air defenses centers. The GBCS will be used in two platform configurations. The GBCS-Light (GBCS-L) will be deployed on a highly mobile multipurpose wheeled vehicle (HMMWV) in support of Light Divisions. The GBCS-Heavy (GBCS-H) will be deployed on a tracked vehicle in support of Armored and Mechanized Infantry Divisions. The third platform of the Intelligence and Electronic Warfare Common Sensor System is the Advanced QUICKFIX (AQF) which provides for a material change to the existing airborne QUICKFIX communications intercept, collection, processing, direction finding, and jamming system and will be deployed to Army Divisions and ACR. Configured in a BLACKHAWK Helicopter (EH-60A), it provides the moving platform necessary to provide for location accuracies sufficient for "steel on target" requirements, as well as for extension of radio Line of Sight (LOS) against target emitters. This project is in the Engineering and Manufacturing Development phase of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

- This project provides for Engineering and Manufacturing Development (E&MD) and testing of Intelligence and Electronic Warfare Common Sensor (IEWCS) Subsystems and Systems leading to Milestone III and product improvement of systems after initial production. The Subsystems are:
 - The TACJAM-A will enhance the Division Commander's ability to outmaneuver and kill the enemy by isolating and suppressing enemy fire control and command and control (C²) nets at critical points in the battle; provide electromagnetic overwatch of the threat C² spectrum inclusive of both conventional and modern modulations (Low Probability of Intercept (LPI)); freeze the enemy in place by jamming C²; and eliminate enemy counterfire by locating High Value Targets (HVTs) for targeting. TACJAM-A consists of state-of-the-art modular and scaleable Electronic Support Measures (ESM) and Electronic Countermeasures (ECM) subsystems configured for use on a variety of air and ground prime movers (tracked, wheeled and airborne).
 - The CHALS-X provides the targeting capability required to support the Division Commander's requirement to locate and kill the enemy by providing location of high value targets. Airborne systems mixed with ground based systems will be capable of precisely locating enemy weapon systems and units (regardless of whether the enemy uses conventional or modern radios) producing target locations sufficiently accurate for first round fire for effect by organic artillery.
 - The CMES (Common Modules ELINT Subsystem) provides search, intercept, Direction Finding (DF), precision location and analysis of the primary non-communication (radar) battlefield threat emitters. While operating in a fully automatic mode, it will enhance the Division Commander's ability to outmaneuver and kill the

Project DL12

Page 2 of 23 Pages

Exhibit R-2 (PE 0604270A)

668

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604270A Electronic Warfare (EW) Development

DL12

enemy by specifically identifying HVTs such as enemy countermortar, counterbattery ground surveillance radar at critical points in the battle and will provide precise emitter locations with targeting accuracy.

2. The United States Marine Corps is utilizing the same subsystems as the GBCS and configuring them in a Light Armored Vehicle as a part of the Mobile Electronic Warfare Support System (MEWSS) improvement program.

3. This project is joint with the National Security Agency's Defense Cryptologic Program (DCP), Program Element #030885G, which provides a portion of the funds required for the development of the precision location subsystem and system integration of GBCS-L and GBCS-H.

Acquisition Strategy: GBCS and AQF, as well as, their subsystems, were developed using open systems architecture that easily accommodates changing threat requirements via software or minor circuit card assembly changes. The GBCS and AQF components will be acquired on a competitive basis and all planned P3I requirements will be competed

FY 1995 Accomplishments:

- 21618 Continued TACJAM-A ECM Development
- 2995 Completed and tested CHALS-X LPI software
- 20987 Continued GBCS/AQF Integration effort
 - Improved GBCS/AQF by adding capabilities to intercept, process, and locate pre-formatted communication signals and additional special modulations.
 - Conducted Customer Test (CT) on GBCS-L
- 4000 Built AD/Exjam models in support of demonstration
- Total 49600

FY 1996 Planned Program:

- 87 Conduct Low Rate Initial Production (LRIP) Special In-Process Review (SIPR) on AQF
- 92 Conduct Milestone III GBCS-L
- 241 Complete TACJAM-A ESM Development
- 6772 Continues (GBCS/AQF) Integration effort
 - Field EMD Models of GBCS and AQF Systems to Task Force XXI
 - Improve GBCS/AQF by including other advanced communication modifications/techniques as well as advanced signal analysis and improved signal sorting parameters.
 - Begin integration of TACJAM-A ECM into AQF
- 1749 Conduct operation demonstration customer test/development test (OCDT) on GBCS
- 3044 High level software design and Initiate hardware development
- 625 Conduct IOT&E on GBCS

Project DL12

Page 3 of 23 Pages

Exhibit R-2 (PE 0604270A)

669

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
5 - Engineering and Manufacturing Development		0604270A Electronic Warfare (EW) Development	DL12
FY 1996 Planned Program: (continued)			
• 750 Contractor maintenance support for Task Force XXI			
• 294 SBIR/STTR reduction not available for execution			
• 38 Revised Economic Assumption not available for execution			
Total	13692		
FY 1997 Planned Program:			
• 12774 Continues GBCS/AQF improvements to include other advanced digital modulations, and techniques, remote collection techniques finish EMC subsystem integration into AQF and begin integration into GBCS-L and GBCS-H, other product improvements resulting from Task Force XXI			
• 1954 OCDT for AQF			
• 800 Contractor maintenance support for Task Force XXI			
• 758 IOT&E for AQF			
• 128 Conduct Milestone III for AQF			
Total	16414		
B. Project Change Summary			
Previous President's Budget (FY 1996)		FY 1996	FY 1997
Appropriated Amount (FY 1995)	50652	14077	16972
Adjustments to FY 1995	49600		
Appropriated Amount (FY 1996)	0	13831	
Adjustments to FY 1996		-139	-558
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	49600	13692	16414
Change Summary Explanation:			
Funding: FY 1996: Revised Economic Assumption ion (-139)			
Schedule: Milestone III for GBCS-L slipped 1 Qtr because technical difficulties experienced during software integration and development of direction finding calibration tables for FY 1996.			
Project DL12		Page 4 of 23 Pages	Exhibit R-2 (PE 0604270A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604270A Electronic Warfare (EW) Development

DL12

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl Cont'd	Total Cost Cont'd
OPA (SSN BZ7326) IEW - Ground Base Common Sensor (GBCS)(TIARA)	58404	45470	47091	43249	44826	114626	126463		
OPA (SSN BZ9753) Modifications for GBCS	0	0	0	0	0	6308	12820		
APA (SSN AB3000) EH-60 QuickFix Mods	38864	36872	13912	59735	39967	48867	61674		
RDTE Budget Activity 7 (DW)	15722	18949	19824	19324	19624	19724	20893		
DCP PE 030885G, GBGS									
RDTE Budget Activity 7 (DW)	5013	3038	2998	4165	5515	6049	6828		
DCP PE 030885G, CHALS-X									

D. Schedule Profile

	FY 1995			FY 1996			FY 1997			FY 1998			FY 1999			FY 2000			FY 2001		
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Acquisition Milestones																					
Award Contract for GBGS-L LPU	X*																				
Award Upgrade for AQF Engine		X*																			
Award Production Contract					X*																
Milestone III on GBGS																					
Milestone III on AQF																					
Engineering Milestones																					
Resume/Continue ECM E&MD																					
Complete TACJAM-A ECM E&MD																					
Conduct System Improvements																					
T&E Milestones																					
Conduct CT for AQF																					
Conduct IOT&E on GBGS-L																					
Conduct IOT&E on AQF																					
Contract Milestones																					
Field RDT&E Model of GBGS-L																					

*Denotes completed milestone

Project DL12

Page 5 of 23 Pages

Exhibit R-2 (PE 0604270A)

671

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development		0604270A Electronic Warfare (EW) Development		March 1996	DL12
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997	
Primary Hardware Development		16536	3504	4340	
Software Development		12673	2602	3214	
Systems Engineering		2010	421	528	
Integrated Logistics Support		4019	841	1055	
Quality Assurance		1206	252	316	
Reliability, Maintainability & Availability		2009	420	527	
Developmental Test & Evaluation		815	784	983	
Government Engineering Support		3740	2272	2751	
Program Management Support		645	606	760	
Program Management Personnel		1947	1658	1940	
Omnibus Reprogramming		4000	0	0	
SBIR/STTR		0	294	0	
Revised Economic Assumption		0	38	0	
Total		49600	13692	16414	
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Government	Method/Type or Contract	Award or Obligation Date	Performing Activity	**Project Office EAC	*Total Prior to FY 1995
Performing Activity	Vehicle				
Product Development Organizations					
Sanders/AEL	C-CPIF	JUN 89	216386	217634	185083
IBM/Loral	SS-CPFF	JUN 90	52997	52997	45704
ESI	C-CPAF	SEP 91	165566	165566	89370
FMC	SS-CPFF	SEP 90	13977	13977	10205
Loral-IEWCS	C-ID/IQ	NOV 95	29522	29522	0
CECOM	MIPR				2418
Ft Monmouth NJ					0
Loral-AD/EXJAM.	SS-CPIF	MAR 96			1301
Misc					1337
					2000
					1377
					250
					0
					210
					0
					2000
					Cont'd
					Cont'd
					210931
					0
					47923
					0
					104449
					0
					13813
					Cont'd
					Cont'd
					13977
					29522
					0
					2000
					Cont'd
					210
					0
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
					0
					210
					0
					2000
					1337
					250
</					

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

		DATE				PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE				DL12	
5 - Engineering and Manufacturing Development		0604270A Electronic Warfare (EW) Development				March 1996	
Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	**Project Office EAC	*Total Prior to FY 1995	FY 1995	FY 1996
Support and Management Organizations							
Vitro	FFP	OCT 95			625	645	
QuesTech	FFP	MAY 95					
In-House	Direct				1952	3614	630
IMMC	Direct					250	1724
Test and Evaluation Organizations							
In-House	MIPR				1220	815	542
							485
							Cont'd
Government Furnished Property							
Contract							
Method/Type or Funding Vehicle		Award or Obligation Date	Delivery Date		Total Prior to FY 1995	FY 1995	FY 1996
Product Development Property							
NOTE: TACJAM-A/CHALS-X/EFVS, Sanders-AEL/IBM-Loral/FMC, respectively, identified above as Product Development Organizations							
Support and Management Property: N/A							
Test and Evaluation Property: N/A							
Subtotal Funds not available for execution							
Subtotal Product Development					334081	44276	332
Subtotal Support and Management					2577	4509	10464
Subtotal Test and Evaluation					1220	815	2354
Total Project					337878	49600	332
							13789
							402610
							0
							11580
							0
							3062
							417584
							Cont'd
*Total Program includes funding from other sources.							
**Project Office EAC includes Marine Corps and National Security Agency funds which are not included in the Total Program (Army budget).							
Project DL12		Page 7 of 23 Pages				Exhibit R-3 (PE 0604270A)	

673

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604270A Electronic Warfare (EW) Development								DL15	
	COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DL15 Army Reprogramming & Analysis Team (ARAT) for Target Sensing Systems (TSS)		3563	2903	3845	4331	3596	0	0	0	18250	

A. Mission Description and Budget Item Justification: Project DL15-Army Reprogramming and Analysis Team (ARAT) for Target Sensing Systems (TSS): The ARAT project will design, develop, implement, test, equip and institutionalize an Army wide infrastructure capable of rapidly reprogramming electronic combat software embedded in offensive and defensive weapon systems. ATSS are those tactical weapons and sensor systems which rely on embedded, well-defined target or emitter signature data for specific identification. Systems supported by this project include but are not limited to: radar warning receiver and jammer sub-systems of attack, scout, utility and SEMA aircraft; aircraft survivability equipment; automated intelligence collection systems; and advanced threat sensors for air defense, artillery and missile applications. The project focuses on advanced information management technologies to: automate the threat recognition process; evaluate the operational impact of threat changes on inventoried sensor; develop, test and evaluate software to counter the change; and to develop tactical loading devices for deploying or deployed forces.

Acquisition Strategy: The ARAT for TSS project will design, develop, implement, test, equip and institutionalize all Army wide infrastructure capable of reprogramming electronic combat software embedded in offensive and defensive weapon systems. The program requirements for software engineering, development, support equipment engineering acquisition, operational training and test and evaluations support will be acquired by the use of Time and Material contracts. This strategy will further such major program events such as the test and evaluation of off-the-self and developmental loading devices, the completion of connectivity of a secure Wide Area Network with all reprogramming centers and the development of flagging models for specific electronic combat survivability systems.

FY 1995 Accomplishments:

- 600 Established tested capability to evaluate tactical memory loading devices.
- 200 Conducted technical training on ARAT and threat databases.
- 995 Technically evaluated threat analysis databases and database management tools (i.e. CAEWIS, EDMS)
- 1218 Completed connectivity of secure Wide Area Network (WAN) with reprogramming center /activity at Eglin Air Force Base and initiated SIPRNET connectivity.
- 250 Tested and evaluated flagging models for two mission data sets.
- 300 Developed and maintained threat parameter libraries for three regional operational threat systems.
- Total 3563

Project DL15

Page 8 of 23 Pages

Exhibit R-2 (PE 0604270A)

674

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604270A Electronic Warfare (EW) Development

DL15

FY 1996 Planned Program:

- 1065 Test and evaluate off-the-shelf and developmental memory loading devices for aviation electronic combat (AEC) equipment.
- 425 Modify or develop database management tools for AEC equipment.
- 500 Evaluate hardware/software and develop measurement and signature intelligence (MASINT) on-line database access capability.
- 375 Upgrade ARAT communications systems.
- 447 Expand on the application of Electronic Intelligence (ELINT) flagging models for additional Mission Data Sets.
- 65 SBIR/SSTR not available for execution
- 26 Revised Economic Assumption not available for execution

Total 2903

FY 1997 Planned Program:

- 1640 Modify or develop database management tools for ADA, IEW, Fire Support and Armor TSS.
- 1160 Test and evaluate off-the-shelf and developmental loading devices for ADA, IEW, Fire Support and Armor TSS.
- 380 Initiate study on the feasibility of electronic broadcast reprogramming.
- 385 Improve or modify ARAT flagging capability for ELINT systems.
- 280 Enhance MASINT database on-line capability.

Total 3845

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

3948

3865

-302

FY 1996

2985

2933

-30

FY 1997

3980

-135

3845

Change Summary Explanation:

Funding: FY 95 Reduction for higher Army priority (-302)

FY 96 Revised economic assumption (-30)

FY 97 Reduction for revised inflation rates (-135)

Project DL15

Page 9 of 23 Pages

Exhibit R-2 (PE 0604270A)

675

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY					DATE				
5 - Engineering and Manufacturing Development					March 1996				
C. Other Program Funding Summary - N/A					PROJECT				
PE NUMBER AND TITLE					DL15				
0604270A Electronic Warfare (EW) Development									

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development	0604270A Electronic Warfare (EW) Development			DL15
A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997	
Government Engineering Support	340	425	510	
Contract Engineering Support	2412	1552	2010	
Development Support Equipment Acquisition	80	90	575	
Operational Training	100	150	150	
PM Support	291	300	300	
Test and Evaluation	250	200	200	
Travel	90	95	100	
Revised economic assumption not available for execution		26	0	
SBIR/STTR reduction not available for execution		65		
Total	3563	2903	3845	
B. Budget Acquisition History and Planning Information	- Not Applicable			

Project DL15

Page 11 of 23 Pages

Exhibit R-3 (PE 0604270A)

677

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604270A Electronic Warfare (EW) Development

PROJECT

DL16

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DL16 TROJAN Development (TIARA)	0	531	1288	1363	1430	0	0	0	4612

A. Mission Description and Budget Item Justification - Trojan Development: New start for Project TROJAN in FY 96. This project is Tactical Intelligence and Related Activities (TIARA) program. A key factor in modern warfare is the ability to collect, process, and use information about your adversary while preventing him from obtaining similar information. Project TROJAN is a combined operational and readiness mission system which uses advanced networking technology to provide seamless rapid radio relay, secure communications to include voice, data, facsimile, and electronic reconnaissance support to U.S. forces throughout the world. Project TROJAN operations may be easily tailored to fit military intelligence unit training schedules and surged during specific events to involve every aspect of the tactical intelligence collection, processing, analysis and reporting systems. This program tests and evaluates new digital intelligence collection, processing and dissemination technology using the fielded TROJAN systems, prior to the acquisition of those technologies. The process that will enable us to win the battlefield information war is referred to as digitization. This capability will allow us to process and disseminate real-time intelligence data from various sources; it forms the intelligence needed to issue orders inside the threat decision cycle. To that end, it is imperative the TROJAN system keep pace with Digitization initiatives in order to respond aggressively to the emerging intelligence communication threats.

Acquisition Strategy: This project will pursue a competitive utilizing firm fixed price best value selection procedures for the Engineering and Manufacturing Development Contract.

FY 1995 Accomplishments: Project Established FY 96.

FY 1996 Planned Program:

- 123 Apply proof-of-principle for video compression/processing technologies to the TROJAN intelligence processing workstation
- 394 Perform proof-of-principle for specific TROJAN applications for non-standard modulations using digital signal processing technologies
- 2 Revised economic assumption
- 12 SBIR/STTR reduction
- Total 531

FY 1997 Planned Program:

- 385 Continue proof-of-principle efforts for specific TROJAN applications for non-standard modulations techniques using digital processing technologies
- 338 Proof-of-principle for video compression/processing technologies
- 478 Develop specialized software for classified pre-processing
- 87 Develop enhanced signal processing algorithms for multiple antennas
- Total 1288

Project DL16

Page 12 of 23 Pages

Exhibit R-2 (PE 0604270A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604270A Electronic Warfare (EW) Development

DL16

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

FY 1996

FY 1997

1333

536

-5

-45

1288

Change Summary Explanation:

Funding: FY 96 Economic Assumption (-3)

FY 97 Revised inflation rates (-45)

C. Other Program Funding Summary

OPA BA0326

Total
Cost
Cont'd

FY 1995 FY 1996 FY 1997 FY 1998 FY 1999 FY 2000 FY 2001

FY 1997

FY 2000

FY 1999

FY 1998

FY 1996

FY 1997

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

D. Schedule Profile

Acquisition Milestones

Contract award for Video

Compression/Processing

Contract Award for Non-

Standard Mod using Digital

Contract Award for Spec Software

Contract Award for Sig Proc Algorithms

Engineering Milestones

Prototype Insertion

To
Compl
Cont'd

FY 1997

FY 1997

FY 1997

FY 1997

FY 1997

FY 1997

FY 1997

FY 1997

FY 1997

FY 1997

FY 1997

FY 1997

FY 1997

FY 1997

Project DL16

Page 13 of 23 Pages

Exhibit R-2 (PE 0604270A)

679

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
5 - Engineering and Manufacturing Development	0604270A Electronic Warfare (EW) Development	DL16	
A. Project Cost Breakdown			
Funds not available for execution	FY 1995	FY 1996	FY 1997
Hardware Development		14	730
Software Development		320	558
Prototype Insertion		197	
Total		531	1288
B. Budget Acquisition History and Planning Information: Not Applicable			

Project DL16

Page 14 of 23 Pages

Exhibit R-3 (PE 0604270A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604270A Electronic Warfare (EW) Development

DL18

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DL18 High Value Asset Defense System	5686	7488	9348	0	0	0	0	0	22522

A. Mission Description and Budget Item Justification: High Value Asset Defense System: This is the continuation of the SHORTSTOP program which was initiated as a Quick Reaction Program (QRP) to a CENTCOM Statement of Need (SON) developed in the early part of Operation Desert Shield/Desert Storm. Thirty six (36) Limited Procurement Urgent (LPU) units (AN/VLQ-9) were procured and fourteen (14) have been upgraded to a multi-band configuration (AN/VLQ-10). Sixteen (16) AN/VLQ-9s and ten (10) AN/VLQ-10s are currently deployed in Bosnia in support of Operation Joint Endeavor. The SHORTSTOP Operational Requirements Document (ORD), approved Apr 94, calls for a system with a lightweight autonomous configuration which shall be quickly and easily deployed via vehicles or manpack. In order to maximize tactical utility, it further requires that the set be capable of operation from either a battery or suitable external power source. The current EMD program for the SHORTSTOP Electronic Protection System will provide a lightweight, fully integrated Radio Frequency Countermeasure system to provide protection for personnel and other high value assets against proximity fuzed munitions. There will be three (3) configurations of the SHORTSTOP Electronic Protection System: a manpack system, a stand alone system, and a vehicle mounted system. SHORTSTOP will be used by Infantry, Engineering, Armored, Field Artillery, and Intelligence units to enhance survivability. Initial Operational Capability (IOC) for the lightweight versions is FY 99.

Acquisition Strategy: A contract was awarded on a competitive basis for the development of a lightweight autonomous configuration of the SHORTSTOP Electronic Protection System.

FY 1995 Accomplishments:

- 232 Completed testing and took delivery of LPU units upgraded to a multiband configuration
- 5379 Continued SHORTSTOP EMD for (9) prototypes
 - Conducted PDR and CDR
 - Continued development of a lightweight omni-directional antenna
 - Continued development of a high power amplifier for the vehicle mounted system
- 75 Completed threat analysis for development of ECM techniques

Total 5686

Project DL18

Page 15 of 23 Pages

Exhibit R-2 (PE 0604270A)

681

UNCLASSIFIED

BUDGET ACTIVITY		DATE	PROJECT
5 - Engineering and Manufacturing Development		March 1996	DL18
BUDGET ACTIVITY		PE NUMBER AND TITLE	
5 - Engineering and Manufacturing Development		0604270A Electronic Warfare (EW) Development	
FY 1996 Planned Program:			
• 6725	Complete fabrication of nine (9) prototypes		
• 325	Conduct Contractor Qualification Test on nine (9) prototypes		
• 250	Conduct IPR for approval to procure units for Initial Operational Test and Evaluation (IOTE)		
• 167	SIBR/STTR reduction not available for execution		
• 21	Revised Economic Assumption reduction not available for execution		
Total			
FY 1997 Planned Program:			
• 7578	Award contract modification for additional units to support IOTE		
• 273	Conduct Technical Test and take delivery of nine (9) prototypes		
• 1497	Conduct IOTE		
Total			
B. Project Change Summary			
Previous President's Budget (FY 1996)		FY 1995	FY 1996
Appropriated Amount (FY 1995)		4991	7698
Adjustment to FY 1995		4886	9679
Appropriated Amount (FY 1996)		800	
Adjustment to FY 1996		7563	
Adjustments to Budget Year (FY 1997) since		-75	
FY 1996 President's Budget			-331
Current President's Budget Submit		5686	9348
Change Summary Explanation:			
Funding: FY 95: Reprogramming to fully fund FY 95 increment of the EMD contract (+800)			
FY 96: Revised Economic Assumption (-75)			
FY 97: Revised inflation rates (-331)			
C. Other Program Funding Summary:			
Other Procurement, Army 2		FY 1995	FY 1996
SSN: VA8000 SHORTSTOP		FY 1997	FY 1998
		FY 1999	FY 2000
		12861	13659
		12728	13564
		To	Total
		Compl	Cost
		Continue	Continue
Project DL18		Exhibit R-2 (PE 0604270A)	
Page 16 of 23 Pages			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604270A Electronic Warfare (EW) Development

DL18

D. Schedule Profile

	1	2	3	4	1	2	3	4	1	2	3	4
	FY 1995				FY 1996				FY 1997			
Conduct PDR	X*											
Conduct CDR		X*										
Begin fabrication of nine (9) prototypes												
Conduct IPR to procure IOTE units								X				
Complete fabrication of nine (9) prototypes								X				
Conduct contractor qualification testing									X			
Award contract modification to procure IOTE units												
Deliver nine (9) EMD prototypes									X			
Conduct Technical Test of nine (9) prototypes									X			
Complete fabrication and deliver IOTE units												X
Conduct IOTE												X

*Denotes completed milestone

Project DL18

Page 17 of 23 Pages

Exhibit R-2 (PE 0604270A)

683

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT	
5 - Engineering and Manufacturing Development	0604270A Electronic Warfare (EW) Development			DL18	
A. <u>Project Cost Breakdown</u>	FY 1995	FY 1996	FY 1997		
Primary Hardware Development	4841	5413	6340		
Development Test and Evaluation	213	825			
Operational Test and Evaluation			1497		
Government Engineering Support	339	501	792		
Program Management Support	293	561	719		
Revised economic assumption not available for execution		21			
SBIR/STTR reduction not available for execution		167			
Total	5686	7488	9348		
B. <u>Budget Acquisition History and Planning Information:</u> Not Applicable					

Project DL18

Page 18 of 23 Pages

Exhibit R-3 (PE 0604270A)

Project DL18

Page 18 of 23 Pages

Exhibit R-3 (PE 0604270A)

684

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604270A Electronic Warfare (EW) Development

D665

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D665 Aircraft Survivability Equipment Development	32076	38828	38579	34606	34542	7988	6523	Continuing	Continuing

A. Mission Description and Budget Item Justification: Aircraft Survivability Equipment Development: Provides for the development and system integration of Aircraft Survivability Equipment (ASE) to achieve survivability, reduce vulnerability, and enhance combat effectiveness required to fulfill Special Electronic Mission Aircraft (SEMA), attack/scout, and assault/cargo mission requirements. Equipment developed will increase combat effectiveness and potential for mission accomplishment by reducing or eliminating the ability of threat air defense systems to detect, hit, damage, or destroy Army aircraft. Developments respond to the approved requirements documents, test, and type classification for production and fielding of ASE systems to address infrared, radar, laser, and optical/electro-optical directed air defense threats. Projects in development include new or upgraded systems to counter monopulse, millimeter wave, frequency agile, pulse doppler, and continuous wave radars; passive infrared missile seekers; and laser directed weapon systems. Continual adjustments are made to this program to meet the changing and evolutionary nature of technology and threat. This program has joint service applications that are coordinated through the Joint Technical Coordinating Group for Aircraft Survivability (JTTCG/AS), as well as NATO applications coordinated through OSD. This project also provides the technical base for electronic warfare equipment for Comanche and Special Operations Aircraft.

Acquisition Strategy: Project is comprised of multiple programs which have been competitively awarded.

FY 1995 Accomplishments:

- 8324 Initiated Engineering and Manufacturing Development (EMD) of Advanced Threat Infrared Countermeasure (ATIRCM) / Common Missile Warning System (CMWS)
- 2723 Completed Demonstration/Validation and initiated EMD of the Advanced Infrared Countermeasures Munitions (AIRCMM) (formerly IR Expendables)
- 15577 Continued EMD of the Advanced Threat Radar Jammer (ATR)
- 1534 Continued development of Advanced Visual Electro-Optical Signature Suppression and Analysis (AVESSA) (formerly Passive IR features) for reduction of aircraft signature in all IR bands relative to heat seeking missiles
- 610 Continued integration efforts of ASE systems
- 98 Completed EMD of the AN/APR-39A(XE-2) Radar Signal Detecting Set (RSDS)
- 3210 Continued in-house and program management administration
- Total 32076

Project D665

Page 19 of 23 Pages

Exhibit R-2 (PE 0604270A)

685

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		D665		
5 - Engineering and Manufacturing Development	0604270A Electronic Warfare (EW) Development				
FY 1996 Planned Program:					
• 15026	Continue EMD of ATIRCM/CMWS				
• 3254	Continue EMD of the AIRCMM				
• 14833	Continue EMD of the ATRJ				
• 1109	Continue development of AVESSA				
• 250	Completed integration efforts of ASE systems				
• 3441	Continue in-house and program management administration				
• 111	Revised Economic Assumptions not available for execution				
• 804	SBIR/STTR				
Total	38828				
FY 1997 Planned Program:					
• 17268	Continue EMD of ATIRCM/CMWS				
• 2530	Continue EMD of the AIRCMM				
• 14053	Continue EMD of the ATRJ				
• 1302	Continue development of AVESSA				
• 3426	Continue in-house and program management administration				
Total	38579				
B. Project Change Summary					
Previous President's Budget (FY 1996)			FY 1996	FY 1997	
Appropriated Amount (FY 1995)			39917	39845	
Adjustments to FY 1995					
Appropriated Amount (FY 1996)			39219		
Adjustments to FY 1996			-391		
Adjustments to Budget Year (FY 1997) since FY 1996				-1266	
President's Budget					
Current President's Budget Submit			38828	38579	
Change Summary Explanation:					
Funding: FY 1995: funds (+368) were reprogrammed for higher priority requirements					
FY 1996: (-391) reflects revised economic assumptions					
FY 1997: (-1266) reflects revised economic assumptions					
Project D665			Page 20 of 23 Pages		
			Exhibit R-2 (PE 0604270A)		

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604270A Electronic Warfare (EW) Development

D665

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total
APA, BA 4 AZ3504 ASE*	0	0	0	10621	41567	57099	56658	Compl	Cost
APA, BA 2 AA0720 ASE Modifications*	3879	704	127	2363	2937	2808	9288	Cont	Cont

*Represents only part of the funding in these SSNs.

D. Schedule Profile

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total
Continue dev of AVESSA	1	2	3	4	1	2	3	4	Cost
Continue EMD contract of ATRJ	X								Cont
Awarded EMD contract of ATRJ	X								Cont
ATIRCM/CMWS				X*					
Completed DEM/VAL of AIRCMM									
Awarded EMD contract of AIRCMM				X*					
Continue EMD of ATIRCM/CMWS									
Continue EMD of AIRCMM									
Continue EMD contract of ATRJ									
Continue dev of AVESSA									
Continue EMD of ATIRCM/CMWS									
Continue EMD of AIRCMM									
Continue EMD contract of ATRJ									
Continue dev of AVESSA									

*Denotes milestone completed

Project D665

Page 21 of 23 Pages

Exhibit R-2 (PE 0604270A)

687

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development		0604270A Electronic Warfare (EW) Development		D665		
A. Project Cost Breakdown						
R&D Contracts		FY 1995	FY 1996	FY 1997		
Test and Evaluation		23040	31176	30342		
Government Engineering Support		853	432	324		
Program Management Engineering Support		1099	1177	1124		
SBIR/STTR/Economic Assumptions		7084	5128	6789		
Total		32076	38828	38579		
B. Budget Acquisition History and Planning Information:						
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	Budget to Complete FY 1997
Product Development Organizations: Note: Miscellaneous includes funding to various activities (ATCOM, St. Louis, MO/CECOM, Fort Monmouth, NJ) for ASE programs						
Thiokol (AIRCMM)	C/CPIF	Sep 95	5010	5010	0	5010
ITT Corp (ATRJ)	C/CPAF	Jul 94	54376	54376	4612	14300
Sanders(ATRCM)	C/CPAF	Sep 95	38722	38722	0	14200
Misc	Contracts				2060	13827
Misc	MIPR				4920	605
Support and Management Organizations : Note: Miscellaneous includes funding to various activities (ATCOM, St. Louis, MO/CECOM, Fort Monmouth, NJ) for ASE programs						
Support Contracts	C/FFP	Nov 94			1099	1124
Misc	MIPR				1177	Cont
SBIR/STTR/Economic Assumptions					562	Cont
Test and Evaluation Organizations: Note: Miscellaneous includes funding to various activities for ASE programs.					6522	Cont
Misc					915	Cont
					853	Cont
					432	Cont
					324	Cont

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604270A Electronic Warfare (EW) Development

D665

Government Furnished Property: None

	FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Total Prior to FY 1995	6672	24139	32353	31466	Cont	Cont
Subtotal Product Development		7084	6043	6789	Cont	Cont
Subtotal Support and Management		853	432	324	Cont	Cont
Subtotal Test and Evaluation		32076	38828	38579	Cont	Cont
Total Project	6672					

Project D665

Page 23 of 23 Pages

Exhibit R-3 (PE 0604270A)

689

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE **March 1996**

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

**0604315A Tri-Service Standoff Attack Missile
(TSSAM)**

PROJECT

DF08

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DF08 Tri-Service Standoff Attack Missile	1156	0	0	0	0	0	0	0	820809

A. Mission Description and Budget Item Justification: TSSAM was joint program with Air Force as the executive service. The program was congressionally directed for the development of a large cruise missile to meet the requirements of all three services. The program objective was to develop a family of affordable, highly survivable, conventional, stealthy cruise missiles which would satisfy tri-service requirements to effectively engage a variety of high-value land and sea targets.

The FY 94 Authorization and Appropriation Congressional Language directed the Army to terminate its participation in the TSSAM program. Based on this direction, and with limited funding, the Army (with OSD concurrence) has begun an orderly termination at minimum expense. The U.S. Air Force Joint Systems Program Office issued a partial Termination for Convenience to the integration contractor, Loral Vought Systems Corporation, Dallas, TX and support contractor CAS, Inc., Huntsville, AL. The Army Acquisition Executive approved the Army TSSAM termination plan on 13 May 94.

This project supported research efforts in engineering and manufacturing development phases of the acquisition strategy and was, therefore, correctly placed in budget activity 5.

Acquisition Strategy: Not applicable. Program in process of being terminated.

FY 1995 Accomplishments:

- 1156 Completion of Termination Activities

Total 1156

FY 1996 Planned Program: No planned program.

FY 1997 Planned Program: No planned program.

Project DF08

Page 1 of 2 Pages

Exhibit R-2 (PE 0604315A)

690

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT
5 - Engineering and Manufacturing Development	0604315A Tri-Service Standoff Attack Missile (TSSAM)		DF08
<u>B. Project Change Summary</u>	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	19421	0	0
Appropriated Value (FY 1995)	19035		
Adjustments to FY 1995 Appropriated Value	-17879		
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current Budget Estimate Submission	1156		
Change Summary Explanation:			
Funding: FY 1995: Emergency Supplemental Appropriations Act (-.880); Omnibus reprogramming (-4.000); below threshold reprogramming (-3.999); rescission in FY 1996 Defense Appropriations Bill (-9.000).			
<u>C. Other Program Funding Summary:</u> Not Applicable.			
Project DF08		Page 2 of 2 Pages	
		Exhibit R-2 (PE 0604315A)	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604321A All Source Analysis System (TIARA)

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	41059	51168	36200	24181	26432	22808	31827		Continuing
DB19 ASAS Evolutionary Acquisition	38338	49716	32433	21666	23918	22808	31827		Continuing
D2FT ASAS Operational Test	2721	1452	3767	2515	2514	0	0	0	12969

Mission Description and Budget Item Justification: This program element, All Source Analysis System, funds development of the All Source Analysis System (ASAS) Evolutionary Acquisition (EA) system and its operational testing. ASAS is the automated support system for the intelligence and electronic warfare (IEW) functional area of the Army Battle Command System (ABCS). It is a tactically deployable Automated Data Processing (ADP) system designed to support management of IEW operations and target development in battalions, brigades, armored cavalry regiments (ACR), separate brigades, divisions, corps, and echelons above corps (EAC). The projects in this program element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in budget activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604321A All Source Analysis System (TIARA)

DB19

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DB19 ASAS Evolutionary Acquisition	38338	49716	32433	21666	23918	22808	31827	Continuing	Continuing

A. Mission Description and Justification: Project DB19 - ASAS Evolutionary Acquisition: This project funds the development of the Army's only tactical intelligence fusion project, the ASAS Block II Evolutionary Acquisition, within the Intelligence Fusion Project Office. The successful execution of military operations requires a flexible and modular intelligence and targeting system that will provide tactical commanders a common view of the battlefield and a means for gaining a timely and comprehensive understanding of enemy force deployments, capabilities, and potential courses of action. The ASAS is a ground based, mobile, command and control, and intelligence processing system. The ASAS system provides automated support to the combat commander in the areas of intelligence and collection management, all-source target and situation analysis, single and multi-source processing, intelligence reporting, electronic warfare, and operational security as well as automation support to battlefield commander's command and control.

Acquisition Strategy: The ASAS Block II development program will build upon and expand the capabilities and functionalities developed and produced in the ASAS Block I System including conversion to the Army Tactical Command and Control System (ATCCS) Common Hardware/Software Open architecture and the OSD directed Common Operating Environment (COE) and Modernized Integrated Database (MIDB). Additional software capabilities include enhanced intelligence and command and control functionality, jump and degraded mode operations, enhanced communications, and improved reliability and supportability. ASAS Block II strategy maximizes the use of Government Furnished Equipment (GFE), government and commercial Non-Developmental Item (NDI) software, reuse of proven Office of Secretary of Defense (OSD) and ATCCS Command, Control, Communications and Intelligence (C3I) software, multiple prototype deliveries and continuous user test and evaluation opportunities. This strategy provides early user capabilities and streamlines acquisition. Building upon experience and feedback gained from the fielded ASAS and other tactical fusion prototypes, ASAS Block II will undergo a Defense Acquisition (DAB) Milestone III review in FY 99.

In March 1994, the Army was directed to accelerate fielding the ASAS capability across the force (including all Military Intelligence units and National Guard brigades) by FY 99. This ASAS-Extended program accomplishes this through; reuse of proven Block I software; leveraging the traditional acquisition successes of Block I; use of relatively low cost NDI equipment; and tailoring the existing training and maintenance support structure. The Army's intent is to keep fielded ASAS technology as current as possible by initiating value engineering/technology insertion to the fielded ASAS and by packaging some of the ASAS Block II software drops into capability packages and inserting them into the fielded ASAS. These capability packages will be used with all of the fielded ASAS systems and modules. ASAS Block II will be fielded to Army active and reserve armored cavalry regiments, separate brigades, divisions, corps, and echelons-above corps. Brigades and Battalions will receive Collateral Remote Workstations.

Project DB19

Page 2 of 9 Pages

Exhibit R-2 (PE 0604321A)

693

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT		
5 - Engineering and Manufacturing Development	0604321A All Source Analysis System (TIARA)		DB19		
FY 1995 Accomplishments:					
•	32880	Continued Block II Engineering & Manufacturing Development (EMD)			
•	1587	Provided GFE to Block II Contractor			
•	3871	Conducted Development/Operational/Assessment Testing			
Total	38338				
FY 1996 Planned Program:					
•	43281	Continue ASAS Block II Evolutionary E&MD Capability Packages			
		-Develop/integrate ASAS Common Applications			
		-Develop and integrate Joint Collection Management Tools			
		-Incorporate DOD directed Common Operating Environment (COE)			
		-Add MIDB Capability			
		-Develop Remote Workstation-Collateral for Task Force XXI			
•	2343	Conduct Development/Operational/Assessment Testing			
•	2872	Procure and provide GFE for Product Development & Test			
•	1079	SBIR/STTR			
•	141	Revised Economic Assumptions - Not available for execution			
Total	49716				
FY 1997 Planned Program:					
•	28861	Continue ASAS Block II Evolutionary Acquisition E&MD Capability Packages			
		-Implement COE-Compliant System Services and Common Applications			
		-Complete Unified Database Schema			
		-Develop Operational Diagnostic Capability			
		-Complete MIDB Effort			
		-Rehost and improve All Source intel functionality from BLkI to Blk II			
•	3572	Conduct Development/Operational/Assessment Testing			
Total	32433				

Project DB19

Page 3 of 9 Pages

Exhibit R-2 (PE 0604321A)

Project DB19

Page 3 of 9 Pages

Exhibit R-2 (PE 0604321A)

694

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE		0604321A All Source Analysis System (TIARA)		DB19						
5 - Engineering and Manufacturing Development												
A. Project Cost Breakdown												
Systems Development		FY 1995	FY 1996	FY 1997								
SETA		30985	41125	27164								
		1786	2002	1583								
Project Management		1126	1617	1752								
Matrix Management		1326	2100	1934								
Test		3115	2872	0								
Total		38338	49716	32433								
B. Budget Acquisition History and Planning Information : Following for Block II ASAS												
Performing Organizations												
Contractor or Government		Contract		Total								
Performing Activity		Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program	
Product Development Organizations												
Lockheed Martin (LMA)		CPAF	Oct 93	107990	107990	13894	23407	28525	20164	22000	107990	
MITRE		MIPR					1500	2700	1200	CONT	CONT	
Tobyhanna Depot		MIPR					2391	6700	4100	CONT	CONT	
Sytex		PWD					2100	2100	1700	CONT	CONT	
Support and Management Organizations												
SYTEX (SETA)							1786	2002	1583	CONT	CONT	
ASAS In-House						0	1126	1617	1752	CONT	CONT	
Matrix CECOM							1326	2100	1934	CONT	CONT	
Test and Evaluation Organizations												
*LMA						0	3115			CONT	3115	
*Beginning in FY 97 all test effort funding is included in the LMA Contract (Product Development)												

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604321A All Source Analysis System (TIARA)

DB19

Government Furnished Property									
Contract									
Item	Method/Type	Award or	Delivery	Total				Budget to	Total
Description	or Funding	Obligation	Date	Prior to				Complete	Program
Product Development Property	Vehicle	Date		FY 1995	FY 1995	FY 1996	FY 1997		
CHS II	MIPR	N/A	6 months from award	0	1587	1100	0	0	2687
Support and Management Property: None									
Test and Evaluation Property									
Test sets CHS II				0	0	2872	0	0	2872
Subtotal Product Development				Total				Budget to	Total
Subtotal Support and Management				Prior to				Complete	Program
Subtotal Test and Evaluation				FY 1995	FY 1995	FY 1996	FY 1997		
Total Project				13894	30985	41125	27164	CONT	CONT
					4238	5719	5269	CONT	CONT
					3115	2872		CONT	CONT
				13894	38338	49716	32433	CONT	CONT

Project DB19

Page 6 of 9 Pages

Exhibit R-3 (PE 0604321A)

697

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604321A All Source Analysis System (TIARA)								D2FT	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D2FT	ASAS Operational Test	2721	1452	3767	2515	2514	0	0	0	12969	
<p>A. Mission Description and Justification: Project D2FT - ASAS Test and Evaluation: This project finances the direct costs of planning and conducting testing and evaluation of the ASAS by the Operational Test and Evaluation Command (OPTEC). ASAS is an Acquisition Category (ACAT) I system with several dedicated iterations of Test and Evaluation (Technical and Operational) between FY 95 and FY 99. Testing/evaluations are conducted under conditions, as close as possible, to those encountered in actual combat with typical user troops trained to employ the system. As necessary OPTEC provides Army leadership with an evaluation of effectiveness and suitability of the system. Project D2FT is restructured from PE 0605712A, TECOM provides the Army leadership with testing of the ASAS. Support of Testing, and is not a new start.</p> <p>Acquisition Strategy: Not applicable, see B19 above.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 2474 Planned and prepared for ASAS Block II operational testing • 247 Planned and prepared for ASAS Block II operational testing evaluation Total 2721 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 1416 Conduct ASAS Block II Technical and Operational Testing and Evaluation • 32 SBIR/STTR • 4 Revised Economic Assumptions not available for execution Total 1452 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 3767 Conduct ASAS Block II Technical and Operational Testing and Evaluation Total 3767 											

Project D2FT

Page 7 of 9 Pages

Exhibit R-2 (PE 0604321A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604321A All Source Analysis System (TIARA)

D2FT

B. Project Change Summary

Previous President's Budget (FY 96)

Appropriated Amount (FY 95)

Adjustments to FY 95

Appropriated Amount (FY 96)

Adjustments to FY 96

Adjustments to Budget Year (FY 97) since

FY 96 President's Budget

Current President's Budget Submit

FY 1995

2955

2893

-172

FY 1996

1493

1467

-15

+1777

FY 1997

1990

3767

Change Summary Explanation:

Funding: FY 95 (-172) reprogrammed for higher priority efforts

FY 96 (-15) the portion of this program that has been proposed for rescission

FY 97 (+1910) moved from DB19 to fully fund operational assessment and (-133) reduced due to revised inflation rates.

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile

FY 1995

1 2 3

4

1

FY 1996

2 3

4

1

FY 1997

2 3

4

X

ASAS Testing/Evaluation

Project D2FT

Page 8 of 9 Pages

Exhibit R-2 (PE 0604321A)

699

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604325A Follow-On To TOW

PROJECT

DE18

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DE18 Follow-On To TOW	0	968	5596	15397	49387	54255	48129	Continuing	Continuing

A. Mission Description and Budget Item Justification: Provides for Engineering and Manufacturing Development (EMD) for Follow-On To TOW (FOTT), a vehicle mounted, crew served Heavy Anti-tank Missile System which will replace/supplement the TOW missile family. It will be integrated onto and fired from the High Mobility Multi-purpose Wheeled Vehicle (HMMWV) with Improved Target Acquisition System (ITAS) and on the Bradley Fighting Vehicle (BFV) with Improved Bradley Acquisition Sub-system (IBAS) platforms. The FOTT will be capable of operating out to the maximum range required in the Heavy Anti-armor Weapon (HAW) Systems Qualitative Materiel Requirements (QMR) and will perform under day/night adverse weather conditions and obscuration. The FOTT will be countermeasures hardened and will increase crew survivability. Projects within this element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in budget activity 5.

Acquisition Strategy: The FOTT program will provide a systems approach by leveraging existing missile technologies. This next-generation missile will be compatible with both current and emerging TOW missile platforms. FY 1997 activities include a pre-EMD risk reduction effort through hardware performance demonstrations by potential FOTT program participants. The EMD contract will be competitively awarded. EMD activities will include both missile design and platform integration.

FY 1995 Accomplishments: Project not funded in FY 95.

FY 1996 Planned Program:

- 944 EMD Preparation.
 - Initiate Program Milestone II Documentation
 - Prepare Request for Proposal for missile and platform integration
 - Conduct system and technical analysis
- 22 SBIR/STTR
- 2 Revised Economic Assumption not available for execution
- Total 968

Project DE18

Page 1 of 3 Pages

Exhibit R-2 (PE 0604325A)

701

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE	PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE				DE18	
5 - Engineering and Manufacturing Development		0604325A Follow-On To TOW					
FY 1997 Planned Program:							
•	1296	EMD Preparation. Complete development of Program Milestone II Documentation Conduct Source Selection					
•	4300	PRE-EMD Risk Reduction. Provide Range Support for Potential FOTT Offerors' Demonstration of missile and platform integration concepts prior to source selection and EMD start Provide Range Instrumentation Suite, Range Facility Support, Range Target Sets, Range Test Management, Execution and Data reduction, TOW Platform Shipment, Integration and Refurbishment					
Total		5596					
B. Project Change Summary							
Previous President's Budget (FY 1996)			FY 1995	FY 1996	FY 1997		
Appropriated Amount (FY 1996)				995	1493		
Adjustments to FY 1996 Appropriated Value				978			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget				-10	+4103		
Current President's Budget Submit				968	5596		
Change Summary Explanation: Funding: FY 1996 - Revised Economic Assumption (-10). FY 1997 - PRE-EMD Risk Reduction. Provide support for potential FOTT offerors' to demonstrate missile and platform integration concepts prior to source selection and EMD start (+4103).							
C. Other Program Funding Summary							
Missile Procurement, Army TOW 2 C59300			FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
			36737	12020	13630	9570	8737

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development.

0604325A Follow-On To TOW

DE18

A. Project Cost Breakdown

Primary Hardware Development
 Training Development
 Program Management Support
 Developmental Test and Evaluation
 Total

FY 1995	FY 1996	FY 1997
	907	1296
	61	4300
	968	5596

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete Cont'd	Total Program Cont'd
PRIME	TBD	TBD	EAC	EAC						
Platform	TBD	TBD	TBD	TBD						
Integration										

Support and Management Organizations

PM CCAWS, PO

RSA, AL

MICOM, RSA, AL PO

MISC PO

Test and Evaluation Organizations

TECOM, APG, PO

MD

Product Development Organizations: None

Government Furnished Property: None.

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

907	61	968	907	61	968	1296	4300	5596	Cont'd	Cont'd
-----	----	-----	-----	----	-----	------	------	------	--------	--------

Project DE18

Page 3 of 3 Pages

Exhibit R-3 (PE 0604325A)

703

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604604A Medium Tactical Vehicles								DH07	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DH07	Family of Medium Tactical Vehicles (FMTV)	4292	1459	0	0	0	0	1696	Continuing	Continuing	

A. Mission Description and Budget Item Justification: This program element (PE) supports modernization of the Army's medium truck fleet. The Family of Medium Tactical Vehicles (FMTV) will replace aging M44 Series 2 1/2 ton trucks, M39 and M809 Series 5 ton trucks which are beyond their average useful life of 20-22 years. FMTV will also provide a follow-on to the current M939/A2 Series 5 ton truck. Body styles currently under development under Project DH07 were deferred from the first 5 year multi-year contract due to budget constraints. Bringing these vehicles on line as soon as possible supports the pure fleet of FMTV to reduce the logistics impact and operating and support costs. This project supports the development of the FMTV Special Body Variants (MTV Tanker, MTV Expandable Van, LMTV Trailer and MTV Trailer). FMTV is required to fill 2 1/2 (LMTV) and 5 ton truck (MTV) requirements, resolve operational deficiencies and operate throughout the theater as multi-purpose transportation vehicles used by combat, combat support and combat service support units. This system is designed to be rapidly deployable worldwide and operate on primary and secondary roads, trails, and cross-country terrain. Vehicles operate in all climatic conditions. In FY 96, Project DH07 funds the Medium Truck Remanufacture Program (MTVR). This research and development effort is a prelude to embarking on a major remanufacture program to increase the mobility, maintainability and reliability of the existing 5 ton fleet. Funding is required in FY 96 in order to harmonize the Army effort with the U.S. Marine Corps MTVR as directed by Congress. This Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

Acquisition Strategy: The acquisition strategy is to obtain a Level III Technical Data Package for the FMTV Special Body Variants that were omitted from the first production contract due to budget constraints. This Technical Data Package will be combined with the Technical Data Package obtained from the first contract to enable all models to be produced under the second FMTV production contract. The acquisition strategy for the Medium Truck Remanufacture Program (MTVR) is to award up to three prototype contracts, which will lead to production.

FY 1995 Accomplishments:

- 1452 Finalize Special Body Variant Prototype contract (FMTV)
- 1116 Developmental Testing for Special Body Variants (FMTV)
- 1719 IOT&E Retest (FMTV)
- 5 Government Engineering (FMTV)

Total 4292

Project DH07

Page 1 of 5 Pages

Exhibit R-2 (PE 0604604A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE	
5 - Engineering and Manufacturing Development		0604604A Medium Tactical Vehicles	DH07
FY 1996 Planned Program:			
•	358 Source Selection Evaluation Board (SSEB) (MTVR)		
•	250 Environmental Assessment - System Technical Support Contract (MTVR)		
•	494 Government Engineering (MTVR)		
•	321 Prototype Contract (MTVR)		
•	32 SBIR/STTR		
•	4 Revised Economic Assumption not available for execution		
	Total		
FY 1997 Planned Program: Program not funded			
B. Project Change Summary			
	Previous President's Budget (FY 1996)	FY 1995	FY 1996
	Appropriated Value (FY 1995)	6452	
	Adjustments to FY 1995 Appropriated Value	6317	
	Appropriated Value (FY 1996)	-2025	
	Adjustments to FY 1996 Appropriated Value		1474
	Adjustments to Budget Year (FY 1997) since		-15
	FY 1996 President's Budget		
	Current Budget Estimate Submission	4292	1459
Change Summary Explanation:			
Funding: FY 95: Reprogramming from project.			
FY 96: Congress increased program by \$1.5M for MTVR, also a portion of the FY 96 program has been reduced for economic assumptions.			
C. Other Program Funding Summary			
	OPA1 Family of Medium Tactical Vehicles	FY 1995	FY 1996
	(MYP) D15500	370168	144054
	OPA4 Initial Spares (FMTV)		1067
	OPA1 5 Ton Truck Extended Svc Pgm (ESP)		
	DV00010		
		FY 1997	FY 1998
		233094	138738
		FY 1999	FY 2000
		234510	279296
		FY 2001	
		341501	
		To	
		Compl	
		Cont	
			4386
			Cont
			3319
			60000
			84216
			84226
			Cont
			4386
			Cont

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development	0604604A Medium Tactical Vehicles	DH07		
<u>D. Schedule Profile</u>				
		FY 1995	FY 1996	FY 1997
1		2	2	2
		3	3	3
		X*		4
IOT&E Retest (FMTV)				
Developmental Testing (FMTV)				
Release RFP (MTVR)			X	
Source Selection Evaluation (MTVR)				X
Award Prototype Contract (MTVR)				X
*Complete				

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604604A Medium Tactical Vehicles

DH07

A. Project Cost Breakdown

Product Development	FY 1995	FY 1996	FY 1997
Developmental Testing	1457	1459	
IOT&E Testing	1116		
Total	1719		
	4292		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Teledyne (Prototype)	C-FFP	Oct 88	13515	13515	13515					13515
Tactical Truck (Prototype)	C-FFP	Oct 88	14500	14500	14500					14500
Stewart Stevenson (Prototype)	C-FFP	Oct 88	17204	17204	17204					17204
Stewart Stevenson (Tech Data Pkg)	C-FFP	Oct 91	10100	10100	10100					10100
Stewart Stevenson (Tech Data Pkg update)	SS-FFP	Jun 92	1916	1916	1916					1916
Stewart Stevenson (Special Bodies Prototype)	SS-CPFF	Sep 92	12774	12774	11322	1452				12774
In-House/Eng TACOM, MI			2167	2167	1668	5	494			2167
Govt Eng (all other fld activities)			1024	1024	1024					1024

Project DH07

Page 4 of 5 Pages

Exhibit R-3 (PE 0604604A)

707

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	March 1996	PROJECT		
BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT			
5 - Engineering and Manufacturing Development		0604604A Medium Tactical Vehicles					DH07			
Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
SSEB, TACOM, MI (MTVR)							358			358
Camber (Sys Spt Contract)							250			250
Prototype Contracts, TBS	C-CPFF						315			315
Support and Management Organizations: N/A										
Test and Evaluation Organizations										
TECOM (APG)			7765	7765	6649	1116				7765
TECOM (YPG)			3000	3000	3000					3000
TEXCOM			4964	4964	3245	1719				4964
Government Furnished Property - None										
Subtotal Product Development					71298	1457	1459			72755
Subtotal Support and Management					12894	2835				15729
Subtotal Test and Evaluation					84192	4292				88484
Total Project										

Project DH07

Page 5 of 5 Pages

Exhibit R-3 (PE 0604604A)

Project DH07

Page 5 of 5 Pages

Exhibit R-3 (PE 0604604A)

708

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604609A Smoke, Obscurent and Target Defeating

D200

System - Engineering Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D200 Smoke/Obscurent Systems	5612	1945	0	0	2745	9037	11186	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element supports the conduct of Engineering and Manufacturing Development (EMD) in smoke and obscurent agents, munitions, and devices to improve survivability of the combined arms force, complement combined weapons systems, and enhance force effectiveness and combat power. Funding supports (1) Motorized Dual Purpose Mechanical Smoke Generator, M56 mounted on the High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) to provide large area visual, infrared (IR) and millimeter wavelength (MMW)-radar obscuration; (2) The M58 Mechanized Smoke System consists of components of the M56 mounted on a M113A3 carrier. The M58 will equip smoke units in heavy units resulting in improved vehicle maneuverability and survivability; (3) M81 MMW/IR Smoke Grenades which support the Vehicle Integrated Defense System. The M81 provides IR and MMW screening from smart Anti-Tank Guided Missiles (ATGM) and top attack weapons. The projects in this Program Element support efforts in the engineering and manufacturing development phase of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Acquisition Strategy: Project D200 - Smoke/Obscurents: The M58 Mechanized Smoke System, primarily an in-house effort, was type classified from the EMD phase. The M58 System will purchase smoke generator components, the driver's viewer enhancer and gas particulate filter units on contracts and furnish as GFE to Anniston Army Depot to integrate the components on the converted platform (M113A3). The M56 P3I Modularity program is an in-house effort in the EMD phase. The program will increase the visual obscuration capability of the system from 60 to 90 minutes, and will be developed and tested at CBDCOM. The proven design will then be integrated into the on-going competitively awarded five-year multi-year production contract for the M56 Smoke Generator System.

FY 1995 Accomplishments:

- 3759 M58-Conducted Production Qualification Test (PQT) and Milestone III/Type Classification
- 1753 M81-Completed MMW/IR Grenade System Engineering and incorporated changes resulting from PPQT
- 100 M81-Conducted Milestone III/Type Classification In-Process Review
- Total 5612

FY 1996 Planned Program:

- 1507 M56-P3I Modularity Complete design (drawings/tech data)
- 300 M56-P3I Modularity Conduct technical/user testing
- 100 M56-P3I Modularity Conduct Milestone III In-Process Review
- 24 SBIR/STTR
- 14 Revised Economic Assumption not available for execution
- Total 1945

Project D200

Page 1 of 4 Pages

Exhibit R-2 (PE 0604609A)

709

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY					DATE			PROJECT	
5 - Engineering and Manufacturing Development					March 1996			D200	
					PE NUMBER AND TITLE				
					0604609A Smoke, Obscurant and Target Defeating System - Engineering Development				
FY 1997 Planned Program: No Planned Program.									
B. Project Change Summary									
Previous President's Budget (FY 1996)					FY 1995	FY 1996	FY 1997		
Appropriated Value (FY 1995)					3703	2000			
Adjustment to FY 1995					3625				
Appropriated Amount (FY 1996)					+1987				
Adjustment to FY 1996						1965			
Adjustments to Budget Year (FY 1997) since						-20			
FY 1996 President's Budget									
Current President's Budget Submit					5612	1945			
C. Other Program Funding Summary									
RDTE,A Budget Activity 2, PE 0602622A					FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
Project A552 Smoke/Novel Effects Munitions					1954	1760	2343	2954	3696
RDTE,A Budget Activity 4, PE 063627A, Project					3077	3160	6380	5631	4798
DE79 Smoke, Obscurant and Equipment									
Defeating Systems									
OPA-3 Appropriation									
M99103, M56 Smoke Generator					12410	0	12515	12723	23330
M99107, M58 Smoke Generator					0	12301	11587	9277	7000
M99104, M157A2 Smoke Generator					0	5052	3475	0	0
Modification Kits, M157A2 Smoke Generator					0	2722	0	0	0
D. Schedule Profile									
1					FY 1995	FY 1996			FY 1997
					2	3	4	1	2
					X*			4	3
									4
M58-Conduct PQT									
M58-Initiate IOTE Modeling					X*				
M58-Complete IOTE Modeling					X*				
M58-Conduct MS III/TC									
M56-Complete P31 Modularity Design									

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604609A Smoke, Obscurant and Target Defeating
System - Engineering Development

D200

D. Schedule Profile

FY 1997

FY 1996

FY 1995

4

3

2

1

4

3

2

1

4

3

2

1

M56-Complete P3I Mod Tech/User Test

M56-Conduct P3I Modularity MS III

M81-Complete PQT

M81-Milestone III

X

X

X*

X*

Project D200

Page 3 of 4 Pages

Exhibit R-2 (PE 0604609A)

711

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development	0604609A Smoke, Obscurant and Target Defeating System - Engineering Development			D200
A. Project Cost Breakdown				
Primary Hardware Development	FY 1995	FY 1996	FY 1997	
Systems Engineering	145	290		
Integrated Logistics Support	1739	422		
Quality Assurance	261	190		
Reliability, Maintainability and Availability	204	100		
Configuration Management	168	10		
Technical Data	192	50		
Test and Evaluation	481	90		
Government Engineering Support	700	293		
Program Management Support	385	200		
Program Management Personnel	469	150		
Hardware	568	150		
Total	300		1945	
	5612			
B. Budget Acquisition History and Planning Information:	Not applicable.			
Project D200	Page 4 of 4 Pages		Exhibit R-3 (PE 0604609A)	

712

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY		PE NUMBER AND TITLE							DATE	PROJECT	
5 - Engineering and Manufacturing Development		0604611A Javelin							March 1996	D499	
	COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D499 JAVELIN		29550	973	1643	1548	0	0	0	0	617476	
<p>A. Mission Description and Budget Item Justification: This Program Element (PE) provides for the continuation of Engineering and Manufacturing Development (EMD) of a manportable antitank weapon system for the combined arms team employment. The infantry must have the capability to defeat numerically superior armored forces. The present medium infantry antitank weapon is DRAGON. The system developed within this PE will replace the DRAGON to provide enhanced lethality for the early entry force. It will have a high kill rate against all known armor threats at extended ranges under day/night, adverse weather conditions and in the presence of battlefield obscuration. This system will be hardened against countermeasures and will not require extensive training for effective employment. Active protection system developments will be considered and modifications studied to defeat these devices if necessary. EMD/Technical Support will conclude in FY 1995. This project supports research efforts in the engineering and manufacturing development phase of the acquisition strategy and therefore is appropriate to Budget Activity 5.</p> <p>Acquisition Strategy: Not applicable.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 21752 EMD Contract/EPP Contract/FTT Upgrade/Advanced Warhead Major Contracts 3386 In-House Support (Program Management Office and RDEC) 982 Other Government Agency Support 3430 Test Support Total 29550 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 14 Program Management Support 935 Test Support 22 SBIR/STTR 2 Revised Economic Assumptions, not available for execution Total 973 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 1544 Tracker Performance Upgrade Contract 99 Program Management Support Total 1643 											

Project D499

Page 1 of 4 Pages

Exhibit R-2 (PE 0604611A)

713

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
5 - Engineering and Manufacturing Development	0604611A Javelin	D499	
B. Project Change Summary			
Previous President's Budget (FY 1996)	FY 1995	FY 1996	FY 1997
Appropriated Value (FY 1995)	31337	0	0
Adjustment to FY 1995	33549		
Appropriated Amount (FY 1996)	-3999		
Adjustment to FY 1996	983		
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget	-10		1643
Current Budget Estimate Submission	29550	973	1643
Change Summary Explanation:			
Funding: FY 1995 - Reprogrammed out of PE (-3999).			
FY 1996 - Revised Economic Assumption (-10).			
FY 1997 - Program adjustment (+1643).			
Schedule: The Live Fire Test and the Limited User Test are currently scheduled for FY 1996. A tracker performance upgrade program will be completed in FY 1998.			
Technical: FY 1997 and FY 1998 funding is provided for a tracker enhancement effort. This program is designed to improve lethality of the system.			
C. Other Program Funding Summary			
Missile Procurement, Army	FY 1995	FY 1996	FY 1997
CC0007 Javelin (AAWS-M)	212583	200858	162104
		147399	339693
		603777	657858
			99155
			2649000
D. Schedule Profile			
Award LRIP II Contract	FY 1995	FY 1996	FY 1997
Conduct Physical Configuration Audit	1	2	3
Initiate Production Verification Test	2	1	2
Award LRIP III Contract	X*	3	4
Conduct System Level Live Fire Tests			
First Unit Equipped			
Full Rate Production Decision (ASARC)			
Award FRP Multiyear			
* Milestone Completed.			
Project D499			

Exhibit R-2 (PE 0604611A)

Page 2 of 4 Pages

714

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604611A Javelin

D499

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Major Contract Support	21752		1544
Support Contractor	0		
Program Management Support	2647	14	99
Research and Development Center Support	739		
Test Support	3430	959	
Miscellaneous (OGA)	982		
Total	29550	973	1643

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
TI/MM JV EMD	C/CPFF	06/21/89	462700	465500	473975	19481				493456
TI/MM JV ALT WHD	CPFF	03/28/94	N/A	N/A	2250	2271				4521
TI/MM JV Upgrd	TDB	12/31/96	N/A	N/A				1544	1120	2664
Support and Management Organizations										
Support Contractor	8(a)/CPFF		N/A	N/A	6747					6747
In-House Support (Core, Collocated, Labs, OGA's)					75864	4368	14	99	368	80713
Test and Evaluation Organizations										
Redstone Technical	Test Center,	RSA, AL			18067	1446				19513
Other					6859	1984	959		60	9862

Government Furnished Property: Not Applicable

Project D499

Page 3 of 4 Pages

Exhibit R-3 (PE 0604611A)

715

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development		0604611A Javelin				
		Total				
		Prior to				
		FY 1995	FY 1995	FY 1996	FY 1997	Budget to
		476225	21752		1544	Complete
		82611	4368	14	99	Program
		24926	3430	959		500641
		583762	29550	973	1643	87460
						29375
						617476
Subtotal Product Development						
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project						

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604619A Landmine Warfare

PROJECT

D088

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D088 Wide Area Munition (WAM)	30175	30179	17609	17500	19027	0	0	0	237703

A. Mission Description and Budget Item Justification: The Wide Area Munition (WAM) provides unique control and offensive capability for a variety of missions. WAM will significantly reduce U. S. and friendly forces casualties by using advanced smart munitions technology on the battlefield. The program provides for Engineering and Manufacturing Development (EMD) of the basic WAM which is deployed by hand and has one way communications capability. The pre-planned product improvement WAM has 2-way command and control and redeployment capabilities, advanced sensors and computer and warhead technology. This project supports the EMD phase of the acquisition strategy for the WAM and is, therefore, appropriately placed in Budget Activity 5.

Acquisition Strategy: The basic WAM will transition to Low Rate Production (LRP) in the 3QFY96. A sole source Fixed Price Incentive Fee contract will be awarded to the EMD contractor for the LRP quantity. Type Classification standard is planned for 2QFY97. FY 97 - FY 99 production buys will be included under the LRP contract as Firm Fixed Price options. A sole source Cost Plus Incentive Fee contract for EMD of an improved WAM will be awarded to the basic WAM developer in FY 96. Type Classification standard of the improved WAM is planned for 4QFY99.

FY 1995 Accomplishments:

- 1690 Completed System Critical Design Review
- 11022 Completed Contractor Prototype Qualification Review
- 17463 Procured and fabricated basic WAM Technical Test/User Test Hardware
- Total 30175

FY 1996 Planned Program:

- 8680 Fabricate Technical Test/Initial Operational Test and Evaluation (TT/IOTE) and Live Fire Hardware Targets for basic WAM
- 14328 Complete TT/IOTE/Live Fire Testing for basic WAM
- 450 Complete Functional Configuration Audit
- 750 Complete initial WAM PIP EMD trade-off Studies
- 5245 Initiate design efforts for integration of Command & Control and Redeployability
- 641 Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Research Program Reauthorization Act of 1992
- 85 Revised Economic Assumptions not available for execution
- Total 30179

Project D088

Page 1 of 4 Pages

Exhibit R-2 (PE 0604619A)

717

UNCLASSIFIED

UNCLASSIFIED

[illegible]

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PROJECT

D088

PE NUMBER AND TITLE

0604619A Landmine Warfare

5 - Engineering and Manufacturing Development

D. Schedule Profile

	1	2	3	4	1	2	3	4	1	2	3	4
Complete System Critical Design Review												
Complete Contractor Prototype				X*								
Qualification Tests			X*									
Fabricate basic WAM TT/IOTE												
Hardware				X*								
Conduct basic WAM Low Rate									X			
Production Milestone Review												
Complete Live Fire Test												
Complete TT/IOTE Testing						X						
Complete Functional Configuration Audit								X				
Complete basic WAM Milestone III										X		
Complete Initial WAM PIP Trade-Off												
Studies & Initiate Design Efforts												
Complete WAM PIP Ground Platform											X	
Preliminary Design Review												
Complete PIP Air Sensor Preliminary												
Design Review												
Procure Initial Contractor System												
Component Test Hardware												
WAM PIP Milestone III - 4QFY99												X

* Milestone Completed

Project D088

Page 3 of 4 Pages

Exhibit R-2 (PE 0604619A)

719

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	PROJECT																																				
BUDGET ACTIVITY	PE NUMBER AND TITLE																																						
5 - Engineering and Manufacturing Development	0604619A Landmine Warfare		D088																																				
<table border="0"> <tr> <td></td> <td>FY 1995</td> <td>FY 1996</td> <td>FY 1997</td> </tr> <tr> <td>A. <u>Project Cost Breakdown</u></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Primary Hardware Development</td> <td>24596</td> <td>24261</td> <td>14470</td> </tr> <tr> <td>Test and Evaluation</td> <td>584</td> <td>538</td> <td>317</td> </tr> <tr> <td>Government Engineering Support</td> <td>3685</td> <td>3072</td> <td>1914</td> </tr> <tr> <td>Government Program Management</td> <td>864</td> <td>776</td> <td>468</td> </tr> <tr> <td>GFM</td> <td>74</td> <td>68</td> <td>40</td> </tr> <tr> <td>MISC</td> <td>372</td> <td>1464</td> <td>400</td> </tr> <tr> <td>Total</td> <td>30175</td> <td>30179</td> <td>17609</td> </tr> </table>					FY 1995	FY 1996	FY 1997	A. <u>Project Cost Breakdown</u>				Primary Hardware Development	24596	24261	14470	Test and Evaluation	584	538	317	Government Engineering Support	3685	3072	1914	Government Program Management	864	776	468	GFM	74	68	40	MISC	372	1464	400	Total	30175	30179	17609
	FY 1995	FY 1996	FY 1997																																				
A. <u>Project Cost Breakdown</u>																																							
Primary Hardware Development	24596	24261	14470																																				
Test and Evaluation	584	538	317																																				
Government Engineering Support	3685	3072	1914																																				
Government Program Management	864	776	468																																				
GFM	74	68	40																																				
MISC	372	1464	400																																				
Total	30175	30179	17609																																				
<p>B. <u>Budget Acquisition History and Planning Information</u> Not Applicable</p>																																							

Project D088

Page 4 of 4 Pages

Exhibit R-3 (PE 0604619A)

720

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604622A Family of Heavy Tactical Vehicles

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	2672	0	0	0	0	0	2672	2672
D659 Family of Heavy Tactical Vehicles	0	824	0	0	0	0	0	824	824
DE43 Semi-Trailer Van	0	1848	0	0	0	0	0	1848	1848

Mission Description and Budget Item Justification: Program element funds various heavy tactical vehicle capabilities to support combat and combat support missions. These missions include the following: line haul, local haul, unit resupply; and transporting water, ammo, and general cargo. This program element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604622A Family of Heavy Tactical Vehicles								D659	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D659	Family of Heavy Tactical Vehicles	0	824	0	0	0	0	0	824	824	
<p>A. Mission Description and Budget Item Justification: This project supports requirements to develop expanded heavy tactical vehicle capabilities to meet the emerging needs of Army users. Specific requirements have been identified for development of alternate flatrack studies; a Palletized Load System (PLS) Universal Power Interface Kit which will provide interfaces for various PLS flatrack or module-based applications; a Heavy Expanded Mobility Tactical Truck-Load Handling System (HEMTT-LSLH) required to determine the effectiveness of the lighter PLS in meeting the mission requirement of airborne units through its enhanced air deployability; and the Forward Repair System (FRS) intended to meet the requirements for a maintenance shop capability to keep up with rapidly moving combat vehicles.</p> <p>Acquisition Strategy: The acquisition strategy is to develop and test prototypes of future requirements to determine producibility and feasibility of incorporating vehicles into future production contracts.</p> <p>FY 1995 Accomplishments: Not funded.</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 90 Flatrack Prototype • 117 GFE for Prototype/Concept Evaluation (FRS) • 79 Continue Flatrack Study • 135 Prototype Application for Water Distributor Flatrack • 153 HEMTT-LHS Conversion • 167 Concept Evaluation/Technical Testing (HEMTT-LHS) • 59 PLS Universal Power Interface Kit Development • 18 SBIR/STTR • 6 Revised Economic Assumptions not available for execution Total 824 <p>FY 1997 Planned Program: Not Funded.</p>											

Project D659

Page 2 of 7 Pages

Exhibit R-2 (PE 0604622A)

722

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604622A Family of Heavy Tactical Vehicles

PROJECT

D659

B. Project Change Summary.

Previous President's Budget

Appropriated Value

Adjustments to Appropriated Value

Current Budget Submit/President's Budget

	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
--	----------------	----------------	----------------

831

7-

824

Change Summary Explanation:

Funding: Congress increased program for FHTV; also a portion was reduced for economic assumptions.

C. Other Program Funding Summary

OPA 1 Family of Heavy Tactical Vehicles (DA0500)

	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
	15641	122525	163343	19194	62679	60132	99225

Total	Cost	TBD
To	Compl	TBD

D. Schedule Profile

Provide GFE for FRS Prototype
FRS Concept Evaluation/Test
Award Prototype Contract (HEMTT-
LLHS and Water Distributor)
HEMTT-LHS Concept Evaluation/Test

	FY 1995		FY 1996		FY 1997	
1	2	3	4	1	2	3
					4	1
						2
						3
						4

Project D659

Page 3 of 7 Pages

Exhibit R-2 (PE 0604622A)

723

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development	0604622A Family of Heavy Tactical Vehicles				D659
A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997		
Product Development		634			
Developmental Testing		190			
Total		824			
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Government	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to
Activity			EAC	EAC	FY 1995
Product Development Organizations					
Oshkosh Truck	CPFF	May 96			
Corp					
Oshkosh Truck	FFP	Aug 96			
Corp.					
In-House Eng		Mar 96			
GFE		Mar 96			
SBIR/STTR					
Revised Economic Assumptions					
Support and Management Organizations: N/A					
Test and Evaluation Organizations					
TECOM		Sep 96			
Government Furnished Property: N/A					
Subtotal Product Development					
Subtotal Support and Management					
Subtotal Test and Evaluation					
Total Project					
Project D659					

Page 4 of 7 Pages

Exhibit R-3 (PE 0604622A)

724

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY		PE NUMBER AND TITLE							DATE		PROJECT	
5 - Engineering and Manufacturing Development		0604622A Family of Heavy Tactical Vehicles							March 1996		DE43	
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost		
DE43 Semi-Trailer Van		0	1848	0	0	0	0	0	1848	1848		

A. Mission Description and Budget Item Justification: This project supports requirements to develop expanded heavy tactical vehicle capabilities to meet the emerging needs of Army users. Specific requirements have been identified for development of potable water in the corp/brigade support areas. Currently, the XM1098 is the only 5000 Gallon Hard Wall Bulk Potable Water Carrier in the Army's inventory. This vehicle can only be utilized in warm weather climates where there is no danger of the water freezing or becoming too hot for consumption.

The users' water requirements will be better satisfied by enabling the XM1098 to be used in a variety of temperature scenarios. The heater/chiller kit will enhance the XM1098 capability by maintaining the tanker water temperature in the desirable range of 40-80 degrees Fahrenheit. The kit will also provide the capability of providing on-demand hot (180 degree F.) and cold (55 degree F) water, regardless of ambient conditions.

This funding supports an integrated technical demonstration of the feasibility of a heater/chiller system comprised of strap-on insulation, integrated power supply, bulk heating and cooling system and on demand heating device. This effort also includes a recirculation pump and fluid level/temperature gauges, not currently available to the XM1098.

Acquisition Strategy: The acquisition strategy is to develop and demonstrate two technology test beds to address the potential technology enhancements to the XM1098.

FY 1995 Accomplishments: Not funded.

- 100 Market survey of Technical Alternatives
- 200 Thermal Simulation and Analysis
- 200 System characteristics
- 200 Cross Country Mobilization Simulation & Analysis
- 150 Technology Integration
- 200 Conceptual Design
- 400 Technology Component Acquisition
- 50 System Modification
- 200 System Installation
- 52 Technology Demonstration

Project DE43

Page 5 of 7 Pages

Exhibit R-2 (PE 0604622A)

725

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
5 - Engineering and Manufacturing Development		0604622A Family of Heavy Tactical Vehicles	
FY 1996 Planned Program: (continued)		DE43	
• 50 Final Report			
• 5 Revised Economic Assumptions not available for Execution			
• 41 SBIR/STTR			
Total	1848		
FY 1997 Planned Program: Not funded.			
B. Project Change Summary			
Previous President's Budget		<u>FY 1995</u>	<u>FY 1996</u>
Appropriated Value	1862		<u>FY 1997</u>
Adjustments to Appropriated Value	14		
Current Budget Submit/President's Budget	1848		
Change Summary Explanation:			
Funding: FY 1996 Congress increased program; a portion of this was reduced for economic assumptions.			
C. Other Program Funding Summary: N/A			
D. Schedule Profile			
		FY 1995	FY 1996
	1	2	3
Market Survey of Technical Alternatives			
Thermal Simulation and Analysis		1	2
System Characteristics	4	3	4
Cross Country Mobilization Simulation		x	1
Technology Integration		x	4
Conceptual Design			x
Tech Component Acquisition			x
System Modification			x
System Installation			x
Technology Demonstration			x
Final Report			x
Project DE43		Exhibit R-2 (PE 0604622A)	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604622A Family of Heavy Tactical Vehicles

DE43

A. Project Cost Breakdown

Project Development
Integration/Demonstration
Total

FY 1995

FY 1996

FY 1997

1848

1848

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Government
Performing
Activity

Method/Type

Award or

Obligation

Date

Product Development Organizations

CAETECH CPFF

Support and Management Organizations: N/A

Test and Evaluation Organizations: N/A

Government Furnished Property: N/A

Subtotal Product Development
Subtotal Support and Management
Subtotal Test and Evaluation
Total Project

Project Office

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

Project DE43

Page 7 of 7 Pages

Exhibit R-3 (PE 0604622A)

727

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT					
5 - Engineering and Manufacturing Development	0604633A Air Traffic Control					D586					
COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost		
D586 Air Traffic Control	11103	1764	5549	1825	1860	2180	2233	Continuing	Continuing		

A. Mission Description and Budget Item Justification: This program element funds continuously evolving efforts for the development of Air Traffic Control (ATC) systems for both tactical and fixed base applications. It funds the integration and qualification of an Air Traffic Navigation, Integration, and Coordination System (ATNAVICS) and Tactical Airspace Integration System (TAIS). These systems provide urgently needed communications and precision/non-precision approach and flight following capability in support of Army tactical airfields, remote landing zones, drop zones, pickup zones and temporary helicopter operating areas worldwide. These are non-developmental item (NDI) programs. Fixed base ATC efforts funded by this line include Navigation Air Systems Modernization (NAVAID), Communication System Modernization and digitization of the ATC structure. The tasks in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

Acquisition Strategy: The acquisition strategy is to procure an ATNAVICS prototype through a Cost Plus Incentive Fee (CPIF) contract for integration of electronic/radar components to include design, development, and testing of an integrated prototype over a two year period. An additional component of the strategy is to continue concept exploration and design definition of the Tactical Airspace Integration System (TAIS) in order to be ready to participate in Task Force XXI.

FY 1995 Accomplishments:

ATNAVICS

- 10037 Procured prototype system for Developmental Testing/Initial Operational Test Evaluation (IOTE)
- 200 Initial Operational Test Evaluation (IOTE)
- 395 Designed, fabricated, tested prototype system
- 100 Planned test under operational conditions

TAIS

- 88 Design/system integration with Army communication hardware/software digitization integration analysis
- 83 Hardware/software demonstration
- 200 Evaluation and suitability study and cost saving data

Total 11103

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604633A Air Traffic Control

PROJECT

D586

FY 1996 Planned Program:

ATNAVICS

- 1307 Continue Prototype System for Developmental Testing/Initial Operational Test Evaluation
- 295 System Performance

TAIS

- 50 System concept design definition
- 71 Suitability study and cost saving data
- 36 SBIR/STTR
- 5 Revised Economic Assumption not available for execution

Total 1764

FY 1997 Planned Program:

ATNAVICS

- 3950 Continue development of prototype
- 750 Developmental and Operational Testing

TAIS

- 600 Procure prototype system for Developmental Testing/Initial Operational Test Evaluation (IOTE)
- 249 Design, fabricate, test prototype system

Total 5549

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current President's Budget Submit

FY 1995	FY 1996	FY 1997
7766	1813	1838
7604		
+3499		
	1782	
	-18	
		+3711
	1764	5549
11103		

Project D586

Page 2 of 5 Pages

Exhibit R-2 (PE 0604633A)

729

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604633A Air Traffic Control

**PROJECT
D586**

Change Summary Explanation:

Funding: FY 95 increase (+3499) reflects reprogramming action from Project D327.

FY 96 decrease (-18) reflects economic adjustment.

FY 97 increase (+3900) reflects realignment from Aircraft Procurement Appropriation.

FY 97 decrease (-189) reflects economic adjustment.

C. Other Program Funding Summary

APA AA0050 - Air Traffic Control

[illegible]

* Denotes milestone completion.

Project D586

Page 3 of 5 Pages

Exhibit R-2 (PE 0604633A)

730

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604633A Air Traffic Control

D586

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997	
Contractor Engineering Support	632	296	307	
Primary Hardware Development	9570	745	3950	
Program Management Support	901	472	542	
Development Test and Evaluation			750	
Government Furnished Equipment		210		
SBIR/STTR		36		
Revised Economic Assumption not available for execution		5		
Total	11103	1764	5549	

B. Budget Acquisition History and Planning Information:

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Raytheon	CPIF	Apr 95				9570				
Raytheon	CPIF	Mar 96					745			
Raytheon	CPIF	Dec 97						3950	Cont	Cont
Support and Management Organizations										
Army Aviation & Troop Command (ATCOM)										
CECOM										
Project D586										
Test and Evaluation Organizations										
TEXCOM										
Govt Furn Eqmt										
SBIR/STTR										
Revised Economic Assumption not available for execution										
							210		Cont	Cont
							36		Cont	Cont
							5		Cont	Cont

Project D586

Page 4 of 5 Pages

Exhibit R-3 (PE 0604633A)

731

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE		March 1996	
5 - Engineering and Manufacturing Development		0604633A Air Traffic Control		D586	
Government Furnished Property: N/A					
		Total		Budget to	Total
		Prior to		Complete	Program
		FY 1995	FY 1995	FY 1996	FY 1997
			9570	745	3950
			1533	768	849
					750
				210	
				41	
			11103	1764	5549

732

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604640A Advanced Command and Control

DG27

Vehicle

	COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DG27 Future Command and Control Vehicle		32370	17739	6649	6759	0	0	0	0	109174

A. Mission Description and Budget Item Justification: This project provides a fully-tracked, armored vehicle with a responsive, reconfigurable, and survivable command and control capability for battle staffs. The Command and Control (C2V) vehicle is capable of command and control during mobile, heavy force operations. The C2V supports the Army Digitization effort and will be capable of hosting current and future communications and electronic systems compatible with the Army Tactical Command and Control System (ATCCS). C2V is a Desert Storm initiative and replaces selected M577 Command Post vehicles. M577's were found to have operational shortcomings and performance deficiencies during Operation Desert Storm. The program is currently in Engineering and Manufacturing Development (EMD).

Acquisition Strategy: The C2V is entering the second year of a three year EMD, Sole Source/Cost Plus Incentive Fee (SS/CPPIF) contract that will end in FY 97. The mission module contract is being used for the vehicle. The mission module contract is entering the second year of a three year Cost Plus Fixed Fee (CPFF) contract that will end in FY 97. A follow-on SS/CPPIF is planned for vehicle Low Rate Initial Production (LRIP) which begins in FY 97. A cost-type contract with options over the LRIP years (FY 97 thru FY 00) is planned for the mission module.

FY 1995 Accomplishments:

- 14336 Fabricate Pre-Production Vehicles
- 1576 Design Logistics Effort
- 13197 Continue Design Engineering
- 1178 Begin Technical Testing
- 2083 Project Management
- Total 32370

FY 1996 Planned Program:

- 4525 Develop Technical Data Package /Producibility Engineering
- 2657 Logistics Effort
- 4234 Continue Design Engineering/Component Qualification/Contractor Test Support
- 961 Prototype Manufacture
- 759 Begin Live Fire Testing
- 2016 Technical Test/Limited User Test
- 2154 Project Management

Project DG27

Page 1 of 5 Pages

Exhibit R-2 (PE 0604640A)

733

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
5 - Engineering and Manufacturing Development	0604640A Advanced Command and Control Vehicle	DG27	
FY 1996 Planned Program: (continued)			
• 383 SBIR/STTR			
• 50 Revised Economic Assumption Not Available For Execution			
Total 17739			
FY 1997 Planned Program:			
• 652 Complete Technical Data Package			
• 1382 Logistics Effort			
• 775 Prototype Manufacture			
• 872 Complete Technical Testing			
• 1549 Continue Live Fire Testing			
• 97 Award LRIP Contract			
• 1322 Project Management			
Total 6649			
B. Project Change Summary			
Previous President's Budget		FY 1995	FY 1996
Appropriated Amount (FY 1995)		32159	18238
Adjustment to FY 1995		31037	
		1333	
Appropriated Amount (FY 1996)			17919
Adjustment to FY 1996			-180
Adjustments to Budget Years 1997 and 1998			-217
Current President's Budget Submit		32370	17739
			6649
Change Summary Explanation:			
Funding: 1333 increase in FY 95: 1100 reprogrammed from PE 23735, Proj D344, 140 reprogrammed from PE 64645, Proj D413, and 93 reprogrammed from PE 23735, Prog D371			
105 decrease in FY 96 due to economic adjustments			
217 decrease in FY 97 due to economic adjustments			
Project DG27		Exhibit R-2 (PE 0604640A)	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development		0604640A Advanced Command and Control Vehicle			DG27
A. Project Cost Breakdown					
Design Engineering	FY 1995	FY 1996	FY 1997	FY 1998	
	14773	11416	2034	1941	
Prototype Manufacture	14336	961	775		
Test	1178	2775	2421	4755	
In House Tasks	2083	2154	1419	63	
SBIR/STTR		383			
Revised Economic Assumptions Not Available For Execution		50			
Total	32370	17739	6649	6759	
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Contract	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997
Government	EAC	FY 1995	FY 1995	FY 1996	FY 1997
Performing Activity	EAC	FY 1995	FY 1995	FY 1996	FY 1997
Method/Type or Funding Vehicle	Performing Activity	EAC	FY 1995	FY 1996	FY 1997
Award or Obligation Date	EAC	FY 1995	FY 1995	FY 1996	FY 1997
Product Development Organizations					
United Defense	31134	30938	32976	17552	10577
(LP) San Jose, CA					
Other Contracts		15298	4689	11557	1800
Support and Management Organizations:					
TACOM			2077	1266	1763
CECOM			3242	817	824
ARMY Europe			2481		
Test and Evaluation Organizations:					
APG, YPG, White Sands			192	1178	2775
				2421	4755
Government Furnished Property: Not Applicable					
<div> <div>Project DG27</div> <div>Page 4 of 5 Pages</div> <div>Exhibit R-3 (PE 0604640A)</div> </div>					

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604640A Advanced Command and Control

DG27

Vehicle

Total

	FY 1995	FY 1995	FY 1996	FY 1997	FY 1998	Budget to Complete	Total Program
Prior to							
FY 1995	37665	29109	12377	2809	1941		83901
Subtotal Product Development	7800	2083	2587	1419	63		13952
Subtotal Support and Management	192	1178	2775	2421	4755		11321
Subtotal Test and Evaluation	45657	32370	17739	6649	6759		109174
Total Project							

Project DG27

Page 5 of 5 Pages

Exhibit R-3 (PE 0604640A)

737

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604641A Tactical Unmanned Ground Vehicle								DE47	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DE47	Tactical Unmanned Ground Vehicle	0	0	2884	2886	2877	2865	2842	0	14354	

A. Mission Description and Budget Item Justification: This is a Joint Service Program. This robotic system provides battalion Commanders and below with the ability to see and shape the battlefield from a remote location utilizing Reconnaissance, Surveillance and Target Acquisition (RSTA), greatly extending the survivability of combined forces by extending the control radius of human presence on the battlefield. The current Joint Army/Marine Corps Operational Requirements Document (JORD) states a need for "combat-expendable" organic unmanned vehicles capable of providing relevant RSTA, chemical vapor detection, patrolling, and hazard/obstacle detection for the maneuver forces, battalion and below. The project is OSD funded through Milestone II (3rd Qtr FY 98), at which point Army and Marine Corps funding begins. This PE supports research efforts in the engineering, manufacturing and design phase of the acquisition cycle and is therefore correctly placed in Budget Activity 5. This is an ACAT III Program.

Acquisition Strategy: The strategy is to integrate mature technologies with emerging command and control data link technology to produce a first generation system that will allow soldiers and Marines to perform complex RSTA from a remote position. This program differs from a traditional strategy by incorporating an in-house Demonstration and Validation. The vehicle platform, sensors, controlling actuators, and most other hardware components are available as NDI. To reduce risk, an in-house Demonstration and Validation phase will be executed using various assets, available to the government as NDI, each emphasizing a peculiar capability. The Demonstration and Validation phase will produce system and interface specifications, through the use of an Integrated Product Team (IPT) approach, which will be incorporated into a request for proposal (RFP) for the Engineering and Manufacturing Development (EMD) phase, currently planned for Fiscal Year (FY) 1998. A full and open competition will be conducted at MS II to select a system prime contractor. The prime contractor's primary effort will be system integration.

FY 1995 Accomplishments: Project funded by OSD in FY 1995

FY 1996 Planned Program: Project funded by OSD in FY 1996

FY 1997 Planned Program:

- 662 Develop and Release Engineering and Manufacturing Development (EMD) Request for Proposal (RFP)
- 1449 Initiate Development of Milestone II Documentation (COEA, TEMP)
- 773 Initiate EMD Contractor Source Selection

Total 2884

Project DE47

Page 1 of 3 Pages

Exhibit R-2 (PE 0604641A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604641A Tactical Unmanned Ground Vehicle

PROJECT

DE47

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

0

FY 1996

0

FY 1997

2985

-101

2884

Change Summary Explanation:

Funding: FY 1997 funds reflect revised inflation adjustments (-101).

C. Other Program Funding Summary This program is OSD funded through Demonstration and Validation. Army and Marine Corps funding begins 3rd quarter FY 97 with the start of Milestone II support activities.

D. Schedule Profile

FY 1995

2 3

1

FY 1996

2 3

FY 1997

2 3 4

4

Complete Cost and Oper. Effect. Analysis

X*

Approved JORD

Milestone I

Initiate User Appraisals

Begin Developmental Test & Evaluation

Develop Draft EMD Request for Proposal

Release EMD Request for Proposal

Initiate EMD Source Selection

Initiate Milestone II Documentation

X*

X*

X

X

X

X

X

* Milestone Completed

Project DE47

Page 2 of 3 Pages

Exhibit R-2 (PE 0604641A)

739

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development		0604641A Tactical Unmanned Ground Vehicle			DE47
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997	
Government Engineering Support				1449	
Program Management Support				1435	
Total				2884	
B. Budget Acquisition History and Planning Information					
Performing Organization					
Contractor or	Contract				
Government	Method/Type				
Performing	or Funding				
Activity	Vehicle				
	Date				
Product Development Organizations					
MICOM RDEC					
RSA, AL				1449	1449
Support and Management Organizations					
UGV/S JPO RSA,				1435	1435
AL					
Test and Evaluation Organizations: None					
Government Furnished Property - Not Applicable					
Subtotal Product Development				1449	Cont
Subtotal Support and Management				1435	Cont
Subtotal Test and Evaluation				2884	Cont
Total Project					

Project DE47

Page 3 of 3 Pages

Exhibit R-3 (PE 0604641A)

740

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604642A Light Tactical Wheeled Vehicle

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	4073	0	0	0	955	1895	6923	6923
DE40: Hi Mob Multi-Purp Whld Veh (HMMWV) Prototype	0	0	0	0	0	955	1895	2850	2850
DE41: Armored Security Vehicle (ASV)	0	4073	0	0	0	0	0	4073	4073

Mission Description and Budget Item Justification: This PE supports all Light Tactical Wheeled Vehicles such as the High Mobility Multi-purpose Wheeled Vehicle (HMMWV), Commercial Utility Cargo Vehicle (CUCV) and the Armored Security Vehicle (ASV). In FY96 DE41 funds the Armored Security Vehicle (ASV) and HMMWV Extended Service Program (ESP). Project DE40 funds the RDT&E effort required to incorporate updated design and technology, and will allow insertion of evolving performance requirements to support new HMMWV procurement. This program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604642A Light Tactical Wheeled Vehicle								DE41	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DE41 Armored Security Vehicle (ASV)		0	4073	0	0	0	0	0	4073	4073	
<p>A. Mission Description and Budget Item Justification: The Armored Security Vehicle (ASV) is a turreted, lightly armored all-wheel drive combat support vehicle which will provide essential protection to selected Military Police units in highly exposed threat environments. The Military Police (MP) currently use the High Mobility Multi-purpose Wheeled Vehicle. The ASV is required to provide improved ballistic protection, increased payload and NBC protection to the MP teams. The need for such a wheeled vehicle was highlighted by recent humanitarian missions such as Operation Restore Hope in Somalia and conflict in Bosnia. There is no other comparable system in the inventory which offers the ballistic protection, transportability and mobility of the ASV. Congress directed FY 1995 funding for this program under OSD PE 0604328D to insure all services needs were met. A joint service memorandum is in place. In FY 1996, Project DE41 also includes funding for the HMMWV Extended Service Program (ESP). The Program Executive Office, Tactical Wheeled Vehicles initiated the Joint Army/Marine Corps HMMWV ESP program in FY 1995. FY 1996 funding will continue this previous effort, thus enabling procurement of vehicles with updated design which will allow insertion of evolving performance requirements and extend the service life of the vehicle another 14 years.</p> <p>Acquisition Strategy: Acquisition strategy for the development phase of the ASV is to award one prototype contract (Dec 95), which will lead to a non-competitive award of a 4-year multi-year production contract in FY 1997. The acquisition strategy for the HMMWV ESP is to develop a remanufacture package.</p> <p>FY 1995 Accomplishments: Program not funded</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 1112 Prototype Contract (ASV) • 203 Government Engineering Support (ASV) • 742 Pre-Production Qualification Test (PPQT) (ASV) • 1913 Initiate Remanufacture Package (HMMWV ESP) • 91 SIBR/STTR • 12 Revised Economic Assumption not available for execution Total 4073 <p>FY 1997 Planned Program: Program not funded</p>											

Project DE41

Page 2 of 5 Pages

Exhibit R-2 (PE 0604642A)

742

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604642A Light Tactical Wheeled Vehicle

DE41

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Value (FY 1995)

Adjustments to FY 1995 Appropriated Value

Appropriated Value (FY 1996)

Adjustments to FY 1996 Appropriated Value

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current Budget Submit/President's Budget

	FY 1995	FY 1996	FY 1997
		2187	896
		4114	
		-41	
			-896
	4073		0

Change Summary Explanation:

Funding: FY96: Congress increased program by \$2.0M for HMMWV ESP, also a portion of the FY96 program has been reduced for economic assumptions.
FY97: Program was zeroed during the PBD process.

C. Other Program Funding Summary

OPA1 Armored Security Vehicle (D02800)

OPA4 Initial Spares (PEO Other) (DS1030)

OPA1 HMMWV ESP (DV0230)

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
			9240	9905	9172	7236			35553
			94	105	96	80			375
					51600	87516	92623		231739

D. Schedule Profile

Source Selection Evaluation (ASV)

Award RDT&E Contract (ASV)

PPQT Testing (ASV)

Release Production RFP (ASV)

Production Contract Award (ASV)

Award Contract Reman Pkg (HMMWV)

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
1	2	3	4	1	4	2	3
			X				
			X				
					X		
						X	
							X

Project DE41

Page 3 of 5 Pages

Exhibit R-2 (PE 0604642A)

743

UNCLASSIFIED

March 1996

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE
	March 1996

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and Manufacturing Development	0604642A Light Tactical Wheeled Vehicle	DE41

[illegible]

Subtotal Product Development 4073

Subtotal	Test and Evaluation
0	0

Project DE41
Page 5 of 5 Pages
Exhibit R-3 (PE 0604642A)

Exhibit R-3 (PE 0604642A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									
5 - Engineering and Manufacturing Development		0604645A Armored Systems Modernization (ASM) - Engineering Development									
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		60852	38973	6726	0	4220	0	0	0	319551	
D175 Advanced Field Artillery System Multi-Option Fuze		6109	6215	6726	0	4220	0	0	0	40836	
D2AT Armored Gun System Operational Test		2848	0	0	0	0	0	0	0	2848	
D413 Armored Gun System (AGS)		51895	32758	0	0	0	0	0	0	275867	

Mission Description and Budget Item Justification: This Program Element supports the Engineering and Manufacturing Development and Operational Testing efforts for the Advanced Field Artillery System Multi-Option Fuze for Artillery (MOFA) and the Armored Gun System (AGS). MOFA will provide proximity, time delay and point detonation functions for 105mm, 155mm and 8 inch bursting projectiles. Project D2AT, AGS Operational Test, supported funding of the dedicated Early User Test and Experimentation (EUTE) to support a Low Rate Initial Production (LRIP) decision in FY 95. Project D413 (Armored Gun System), funds the Engineering and Manufacturing Development of the AGS. The projects in this program element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5. Project D417, AFAS-ED, D418, FARV-ED, and D2KT, Operational Testing for AFAS have moved to Program Element 0604854, Artillery Systems-EMD beginning in FY97.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604645A Armored Systems Modernization (ASM)

D175

- Engineering Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D175 Advanced Field Artillery System Multi-Option Fuze	6109	6215	6726	0	4220	0	0	0	40836

A. Mission Description and Budget Item Justification: Crusader is the Army's next generation 155mm self-propelled howitzer system that will provide a significant increase in artillery survivability, mobility and operational capability and effectiveness through utilization and integration of advanced technology in its subsystems and combat components. This project finances the Engineering and Manufacturing Development phase of MOFA. MOFA will provide proximity, time delay and point detonation functions for 105mm, 155mm and 8 inch bursting projectiles. MOFA will be inductively (or manually) set contributing to Crusader's critical automated ammunition handling capability, allowing Crusader to meet extended range, rate of fire (12 rounds/min) and autonomous operations requirements.

FY 1995 Accomplishments:

- 4909 Baseline design, producibility maturation, electronics prove-out
- 600 Program management, Management engineering services
- 600 Subsystem testing
- Total 6109

FY 1996 Planned Program:

- 4019 Final hardware design, integration and build
- 568 Program management, Management engineering services
- 1471 Qualification testing/development and Operational testing
- 139 SBIR/STTR
- 18 Revised Economic Assumption not available for execution
- Total 6215

FY 1997 Planned Program:

- 3945 Design enhancements and updates, Production Readiness Review
- 500 Program management, Management engineering services
- 2281 Continuation of Developmental and Operational testing, completion of Qualification testing and Type Classification testing
- Total 6726

Project D175

Page 2 of 12 Pages

Exhibit R-2 (PE 0604645A)

747

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE		DATE		March 1996			
5 - Engineering and Manufacturing Development		0604645A Armored Systems Modernization (ASM) - Engineering Development		PROJECT		D175			
B. Project Change Summary									
Previous President's Budget		FY 1995	FY 1996	FY 1997					
Appropriated Amount		6109	6388	6965					
Adjustment to FY 1995									
Appropriated Amount (FY 1995)			6277						
Adjustment to FY 1996			-62						
Adjustments to Budget Year (FY 1997) since				-239					
FY 1996 President's Budget									
Current Budget Submit/President's Budget		6109	6215	6726					
Change Summary Explanation:									
Funding: Adjustment in FY 96 due to Revised Economic Assumptions (-62)									
Adjustment in FY 97 due to Revised Economic Assumptions (-62)									
C. Other Program Funding Summary									
		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total Cost
RDTE, A Budget Activity 4 PE 6034645, Project		112840	127399						538022
D409 - AFAS									
Ammo, A Appropriation ER8017 MOFA						1901	31222	59638	265100
Production									
RDTE, A Budget Activity 4 PE 63854, Project				255916	324285	296054	42983		357861
D505 Crusader - AD									919238
D. Schedule Profile									
		FY 1995	FY 1996	FY 1997					
1	2	3	4	1	2	3	4		
Acquisition Milestones (AM)									
Milestone III IPR/Type Classification									
AM - Hardware Delivery									
EM - Task IV start									
EM - Complete Task III									
T&E Milestones - Pre-qualification Test									
T&E Milestones - Baseline Design Testing									
Project D175									

Exhibit R-2 (PE 0604645A)

Page 3 of 12 Pages

748

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	March 1996	PROJECT D175
BUDGET ACTIVITY	PE NUMBER AND TITLE							
5 - Engineering and Manufacturing Development	0604645A Armored Systems Modernization (ASM) - Engineering Development							
D. Schedule Profile	FY 1995	FY 1996				FY 1997		
	1	2	3	4	1	2	3	4
Critical Design Review								
EM - Contract Completion					X			x
T&E Milestones - Completion of						X		
Development & Operational Test							X	
MS III								
* Milestone Completed								

Project D175

Page 4 of 12 Pages

Exhibit R-2 (PE 0604645A)

749

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development		0604645A Armored Systems Modernization (ASM)		March 1996 D175	
		- Engineering Development			
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997	
Product Development		4909	4019	3945	
Support and Management		600	568	500	
Test and Evaluation		600	1471	2281	
SBIR/STTR / Revised Economic Assumptions			157		
Total		6109	6215	6726	
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Government	Contract Method/Type	Award or Obligation Date	Performing Activity	Project Office EAC	Total Prior to FY 1995
Performing Activity	Vehicle				FY 1995
Product Development Organizations					
Alliant Tech Sys	CPIF	May 92	18210	20015	10714
Hopkins, MN					1788
Raytheon/TI Joint Ventures,	SS-CPFF	Mar 94			
Twesbury, MA					2812
AMCCOM,					1600
ARDEC, Dover,					1012
NJ & Adelphi, MD					960
Support and Management Organizations					
AMCCOM,					1747
ARDEC, Dover NJ					600
& Adelphi, MD					568
					500
					220
					3635
Test and Evaluation Organizations					
Project D175					
				Page 5 of 12 Pages	
				Exhibit R-3 (PE 0604645A)	

750

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604645A Armored Systems Modernization (ASM)

D175

- Engineering Development

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
TECOM, Yuma, AZ, APG, ARL, ARDC, HAFB					346	600	1471	2281		4698
Government Furnished Property: None										
Subtotal Product Development					15314	4909	4019	3945	4000	32187
Subtotal Support and Management					1747	600	568	500	220	3635
Subtotal Test and Evaluation					346	600	1471	2281		4698
SBIR/STTR/ Revised Economic Assumption							157			157
Total Project					17407	6109	6215	6726	4220	40836

Project D175

Page 6 of 12 Pages

Exhibit R-3 (PE 0604645A)

751

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996																			
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT																				
5 - Engineering and Manufacturing Development		0604645A Armored Systems Modernization (ASM) - Engineering Development								D2AT																				
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost																				
D2AT	Armored Gun System Operational Test	2848	0	0	0	0	0	0	0	2848																				
<p>A. Mission Description and Budget Item Justification: The AGS is an Acquisition Category II system with a dedicated Early User Test and Experimentation (EUTE) to support an LRIP decision in FY 95. This project finances the direct costs of planning and conducting operational testing and evaluation of the AGS by the Operational Test and Evaluation Command (OPTEC). Operational testing is conducted under conditions, as close as possible, to those encountered in actual combat with typical user troops trained to employ the system. C-PTEC provides Army leadership with an independent test and evaluation of the effectiveness and suitability of the system. Project D2AT is not a new start; it represents test funds previously budgeted in PE 0605712, Support of Operational Testing, Project D001, OPTEC Initial Operational Test and Evaluation (IOTE).</p> <p>Acquisition Strategy: Not Applicable</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 2848 Early User Test Total 2848 <p>FY 1996 Planned Program: No planned program</p> <p>FY 1997 Planned Program: No planned program</p> <p>B. Project Change Summary:</p> <table border="1"> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td>2909</td> <td>0</td> <td>0</td> </tr> <tr> <td>Appropriated Value</td> <td>2848</td> <td>0</td> <td>0</td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Current Budget Submit/President's Budget</td> <td>2848</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>Change Summary Explanation: Not Applicable</p> <p>C. Other Program Funding Summary Not Applicable</p>												FY 1995	FY 1996	FY 1997	Previous President's Budget	2909	0	0	Appropriated Value	2848	0	0	Adjustments to Appropriated Value	0	0	0	Current Budget Submit/President's Budget	2848	0	0
	FY 1995	FY 1996	FY 1997																											
Previous President's Budget	2909	0	0																											
Appropriated Value	2848	0	0																											
Adjustments to Appropriated Value	0	0	0																											
Current Budget Submit/President's Budget	2848	0	0																											

Exhibit R-2 (PE 0604645A)

Page 7 of 12 Pages

Project D2AT

752

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604645A Armored Systems Modernization (ASM)
- Engineering Development

D2AT

D. Schedule Profile

	FY 1995	FY 1996	FY 1997
1	2	2	2
	3	3	3
	4	4	4
	X*		

Early User Test and Evaluation

* Milestone Completed

Project D2AT

Page 8 of 12 Pages

Exhibit R-2 (PE 0604645A)

753

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604645A Armored Systems Modernization (ASM)

D413

- Engineering Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D413 Armored Gun System (AGS)	51895	32758	0	0	0	0	0	0	275867

A. Mission Description and Budget Item Justification: The Armored Gun System (AGS) is a strategically deployable, tactically transportable, lightly armored, highly mobile, direct fire weapon system. The AGS will support light infantry forces in offensive and defensive operations, low and mid intensity conflicts. The AGS will be employed during contingency force operations; therefore it must be capable of insertion via low velocity air drop (LVAD) and execute forced entry operations. Its role is to support infantry units in direct fire mode for point fire target destruction, generally against bunkers, threat medium armor systems, buildings, and in Military Operations in Urban Terrain. System capabilities include C-130 LVAD (Level I Armor), Roll-on/Roll-off C141 (Level II Armor), Roll-on/Roll-off C-17 (Level III Armor), 105mm main gun (XM35) with autoloader; 3 man crew, fire control equivalent to M1 and mobility with Level III armor greater than the M551 Sheridan. The Army is terminating the AGS program because of changing Research Development and Acquisition (RDA) priorities and budgetary pressures.

Acquisition Strategy: The AGS program is not being terminated because of programmatic problems. The funding in FY 1996 will be used for an orderly close-out of the program. RDTE funds in FY97 and FY98 will be reinvested to make other important RDA programs healthier.

FY 1995 Accomplishments:

• 42501	Continue EMD
• 1800	Continue Vulnerability Testing
• 3351	Continue Technical Testing
• 4143	Project Management
Total	51895

FY 1996 Planned Program:

• 27699	EMD
• 456	Technical Testing phase-out
• 236	Vulnerability Testing Completion
• 3575	Project Management
• 700	SBIR/STTR
• 92	Revised economic adjustment not available for execution
Total	32758

FY 1997 Planned Program: No planned program

Project D413

Page 9 of 12 Pages

Exhibit R-2 (PE 0604645A)

754

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604645A Armored Systems Modernization (ASM)

D413

- Engineering Development

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2002

FY 2003

FY 2004

FY 2005

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

FY 2014

FY 2015

FY 2016

FY 2017

FY 2018

FY 2019

FY 2020

FY 2021

FY 2022

FY 2023

FY 2024

FY 2025

FY 2026

FY 2027

FY 2028

FY 2029

FY 2030

Change Summary Explanation:

Funding: FY 95 - Reprogrammed for Horizontal Technology Integration (HTI) efforts.

FY 96 - Revised economic assumptions.

FY 97 - Change to Acquisition Strategy. Terminate program.

Schedule: All efforts have been put on hold pending formal announcement of program termination.

C. Other Program Funding Summary

WTCV, A Appropriation

G82800 Armored Gun System

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2002

FY 2003

FY 2004

FY 2005

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

FY 2014

FY 2015

FY 2016

FY 2017

FY 2018

FY 2019

D. Schedule Profile

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2002

FY 2003

FY 2004

FY 2005

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2002

FY 2003

FY 2004

FY 2005

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2002

FY 2003

FY 2004

FY 2005

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2002

FY 2003

FY 2004

FY 2005

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2002

FY 2003

FY 2004

FY 2005

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2002

FY 2003

FY 2004

FY 2005

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2002

FY 2003

FY 2004

FY 2005

FY 2006

FY 2007

FY 2008

FY 2009

FY 2010

FY 2011

FY 2012

FY 2013

* Milestone Completed

(Note: All efforts have been put on hold pending formal announcement of program termination)

Project D413

Page 10 of 12 Pages

Exhibit R-2 (PE 0604645A)

755

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
D413

5 - Engineering and Manufacturing Development

0604645A Armored Systems Modernization (ASM)
- Engineering Development

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
SBIR/STTR /							792			792
Revised-Economic Assumptions										
Test and Evaluation Organizations										
ATC APG, MD	MIPR				3571	4916	699	0	0	9186
Misc Govt Agcy	MIPR				1181	1290	124	0	0	2595
Government Furnished Property: None										
Product Development Property										
XM35 Gun	MIPR	Aug 91	Nov 92		11068					11068
Support and Management Property										
XM35	MIPR				2297	815	480			3592
Test and Evaluation Property										
XM35 Gun	MIPR				1659	692	230			2581
Subtotal Product Development					175093	41756	26677	0	0	243526
Subtotal Support and Management					9710	3241	5028	0		17979
Subtotal Test and Evaluation					6411	6898	1053	0		14362
Total Project					191214	51895	32758	0	0	275867

Project D413

Page 12 of 12 Pages

Exhibit R-3 (PE 0604645A)

757

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604649A Engineer Mobility Equipment Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	15167	23763	35410	24580	16721	14451	6977	0	163220
DG15 TRACTOR CARD	0	430	0	0	0	0	0	0	430
DG25 M1 Breacher	0	10619	33337	20032	8530	14451	6977	0	93946
DG26 Heavy Assault Bridge (HAB)	15167	12714	2073	4548	8191	0	0	0	68844

Mission Description and Budget Item Justification: This Program Element (PE) supports the development of new, advanced combat engineer systems that will have mobility characteristics comparable to the maneuver forces supported. Two projects are included in the PE; both are Operation Desert Storm initiatives. The two projects are the M1 Breacher and the Heavy Assault Bridge (HAB). The base for both vehicles is an M1 Abrams Tank chassis. The M1 Breacher will integrate on the chassis a versatile/survivable full-width mine clearing blade with automatic depth control, a power driven excavating arm, and an armored commander's control station. The HAB will integrate a bridge capable of supporting Military Load Class (MLC) 70 ton loads and a launching mechanism. All projects in this PE support research efforts in the Engineering and Manufacturing Development (EMD) phase of the life cycle acquisition strategy, and are correctly located in Budget Activity #5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604649A Engineer Mobility Equipment
Development

DG25

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DG25 M1 Breacher	0	10619	33337	20032	8530	14451	6977	0	93946

A. Mission Description and Budget Item Justification: The M1 Breacher will provide the Combat Engineer with significantly improved mission effectiveness and crew/vehicle survivability while clearing minefields and removing complex natural and man-made obstacles at the forward edge of the battlefield. The M1 Breacher will be capable of moving with, and be as survivable as, the force it is supporting. It will provide the maneuver force with the freedom required to successfully execute assigned ground combat mission requirements. Funding in this phase will support system technical evolution to meet operational requirements prior to production, production planning, and government testing prior to a Milestone III decision.

Acquisition Strategy: The M1 Breacher, built around the M1 Abrams Tank chassis, utilizes a streamlined acquisition strategy. Research and development efforts have leveraged the accomplishments of the Combat Mobility Vehicle Advanced Technology Transition Demonstrator (CMV-ATTD) contract. Design modifications have been written into the Advanced Development contract for the powertrain and other chassis components/systems necessary to insure that the Breacher will meet the mission profile required by the Operational Requirements Document. Through the production buy the vehicle will be sole sourced to United Defense Limited Partnership (UDLP), Ground Systems Division, York, PA.

FY 1995 Accomplishments: No planned program

FY 1996 Planned Program:

- 600 Award Breacher EMD Contract
- 1715 Provide Government and Contractor Program Management Oversight
- 3674 Finish Design Refinement and Continue with Logistics Development Efforts
- 1627 Perform System Vetronics and Other Test Activities
- 237 SBIR/STTR
- 29 Revised Economic Assumptions Not Available for Execution
- 2737 To be reprogrammed to support extension to Advanced Development contract, PE/Project 0603649A/DG24
- Total 10619

FY 1997 Planned Program:

- 1566 Conduct System Vetronics Testing
- 13443 Complete Prototype Design Refinement

Project DG25

Page 2 of 10 Pages

Exhibit R-2 (PE 0604649A)

759

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0604649A Engineer Mobility Equipment

DG25

- 10083 Begin Validation of Manufacturing Facilities, Processes and Procedures; Prototype Repair and Modification
- 8245 Provide Government and Contractor Program Management Oversight

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

Change Summary Explanation:

Funding: In FY 1996 \$2373 is planned to be reprogrammed to the Advanced Development budget, PE/Project 0603649A/DG24 to support current program requirement to extend the Demonstration/Validation phase. Also, decrease of \$108 is the result of revised economic assumptions. Increase of \$20062 in FY 1997 to support EMD phase of the program.

Schedule: Completion of System Advanced Development phase is now scheduled for 3Q96. Start of EMD phase has moved to the end of 3Q96.

C. Other Program Funding Summary

RDTE, A Budget Activity 4

PE 0603649A, Project DG24, M1 Breacher AD

PA, WTCV, GZ3200, Breacher MOD

PA, WTCV, GEO175, Breacher Spares

D. Schedule Profile

Begin Dev

Testing

Conduct Milestone II Review

Project DG25

Page 3 of 10 Pages

Exhibit R-2 (PF 0604649A)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0604649A Engineer Mobility Equipment

Development

**PROJECT
DG25**

FY 1996

1.661 YF

8661 J.F.

4

Development (EMD) Contract

X

X

*** Milestone Completed**

Page 4 of 10 Pages

Exhibit R-2 (PE 0604649A)

761

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development	0604649A Engineer Mobility Equipment Development				DG25
A. <u>Project Cost Breakdown</u> Development Engineering Logistics Support System Test & Evaluation System Project Management To be Reprogrammed to PE/Project 0603649A/DG24 SBIR/STTR and Revised Economic Assumptions Not Available for Execution Total	FY 1995	FY 1996	FY 1997		
		2632	13443		
		1042	5322		
		1627	6327		
		2315	8245		
		2737			
		266			
		10619	33337		
B. <u>Budget Allocation History and Planning Information</u>					
Performing Organizations					
Contractor or Government	Method/Type	Award or Obligation	Performing Activity	Project Office	Total
Performing Activity	Vehicle	Date	EAC	FY 1995	FY 1996
Product Development Organizations					
United Defense	SS-CPIF	Mar 96	NA	NA	2737
York, PA					
United Defense	SS-CPIF	Jun 96	NA	70816	5483
York, PA					
Other Contracts	Various	Various	NA	NA	200
Support and Management Organizations					
TACOM					
Warren, MI					
Other Gov't					
Agencies					
Contract Support					
to Milestone Rev					
				1170	1885
				2357	5412
				1207	1973
				130	595
					725
Project DG25	Page 5 of 10 Pages			Exhibit R-3 (PE 0604649A)	

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604649A Engineer Mobility Equipment Development

PROJECT

DG25

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
SBIR/STTR and Revised Economic Assumptions							266			266
Test and Evaluation Organizations										
TECOM							635	1098	8582	10315
APG, MD										
Government Furnished Property										
Contract										
Method/Type or Funding Vehicle										
Award or Obligation Date										
Item Description										
Test and Evaluation Property										
System Support										
Package										
		Mar 97	Jun 97				60	468	974	1502
Subtotal Product Development							8220	28207	37326	73753
Subtotal Support and Management							1704	3564	3108	8376
Subtotal Test and Evaluation							695	1566	9556	11817
Total Project							10619	33337	49990	93946

Project DG25

Page 6 of 10 Pages

Exhibit R-3 (PE 0604649A)

763

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604649A Engineer Mobility Equipment Development								DG26	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DG26	Heavy Assault Bridge (HAB)	15167	12714	2073	4548	8191	0	0	0	68844	
<p>A. Mission Description and Budget Item Justification: The HAB will provide Military Load Class (MLC) 70 vehicles the capability to cross 24-meter gaps (26-meter bridge). The HAB will have mobility characteristics comparable to the maneuver forces it will support. The launch time for the bridge will be five minutes or less; the retrieve time will be a total of ten minutes or less which includes five minutes to engage plus five minutes to place the vehicle in a travel mode. The base for the HAB is an M1A2 Abrams Tank chassis.</p> <p>Acquisition Strategy: Side-by-side Demonstration Testing was completed in FY 93 on three different prototype bridges and launchers for Phase I of Engineering and Manufacturing Development (EMD). As a result of the testing and submission of proposals, one contractor, General Dynamics Land Systems Division (GDLs), was selected to complete Phase II of EMD with a Cost-Plus-Award-Fee contract. A contract will be awarded in FY 96 for 2 HAB systems with an option for four additional systems that will complete development testing. Follow-on Fixed Price contracts will be awarded for LRIP and Production requirements.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 12758 EMD Phase II Contract; Conducted Critical Design Review (CDR), Started Prototype Build 112 Purchased GFE 321 Systems Engineering Analysis Contract 1976 Program Management; Reviewed CDR, Conducted Program Reviews, Matrix Support and Prepared Request For Proposal (RFP) for 6 Test Vehicles <p>Total 15167</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 7857 EMD Phase II Contract; Complete Prototype Build; Complete Contract Testing and Support Government Testing 2000 Systems Technical Support Contract 419 Award of Environmental Study / Various Engineering Services Contracts 2118 Program Management; Conduct Logistics Demonstration, Start PPQT 284 SBIR/STTR 36 Revised Economic Assumptions Not Available for Execution <p>Total 12714</p>											

Project DG26

Page 7 of 10 Pages

Exhibit R-2 (PE 0604649A)

764

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604649A Engineer Mobility Equipment Development

DG26

FY 1997 Planned Program:

- 2073 Complete EMD II Contract
- Total 2073

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

12106

11846

3321

FY 1996

10471

12842

-128

FY 1997

1109

964

2073

Change Summary Explanation:

Funding: FY 1995 below threshold reprogramming (+\$1000 from PE 0203735A, Project D330; +\$100 from PE 0203735A, Project D280; +\$385 from PE 0604778A, Project D163; +\$141 from PE 0604808A, Project D415; +\$74 from PE 0603797A, Project C53; and +\$1360 from HQDA). FY 1996 decremented for economic adjustments. Increase in FY97 supports program test requirements.

C. Other Program Funding Summary

PA, WTCV, GZ3250, HAB MOE

PA, WTCV, GE0177, HAB Spares

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To
		14610	51377	45588	52427	78817	109671	Compl
				967	966	1554	1637	Cont'd
								Cont'd

D. Schedule Profile

FY 1995

1 2 3

X*

FY 1996

2 3 4

X

FY 1997

1 2 3

X

Conduct CDR

Begin PPQT Testing

Award of 6 Test Vehicles

End PPQT Testing

LRIP Contract Award

* Milestone Completed

Project DG26

Page 8 of 10 Pages

Exhibit R-2 (PE 0604649A)

765

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development	0604649A Engineer Mobility Equipment Development				DG26
A. Project Cost Breakdown					
Development Engineering	FY 1995	FY 1996	FY 1997		
Logistics Support	12307	9617	1928		
System Test & Evaluation	884	660	145		
System Project Management	1976	1280	837		
SBIR/STTR and Revised Economic Assumptions Not Available for Execution		320			
Total	15167	12714	2073		
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Government	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997
Performing Activity	EAC	FY 1995			
Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC			
Product Development Organizations					
Gen Dyn Land Sys C-CPAF	Jan 94	NA	35318	13932	12758
Sterling Hgts, MI				7857	2073
Gen Dyn Land Sys SS-CPFF	Feb 96	NA	NA	2000	
Sterling Hgts, MI					7691
SMS Corp SS-F&D	May 92	NA	NA	5798	
St. Louis, MO					5798
Other Contracts Various Locations			NA	432	321
Support and Management					
PMO Support			3594	1673	827
ANAD			381	15	
Anniston, AL					2000
Other Gov't Agencies			1179	196	10
					1385
Project DG26	Page 9 of 10 Pages			Exhibit R-3 (PE 0604649A)	

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604649A Engineer Mobility Equipment

DG26

Development

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total		FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
					Prior to FY 1995						
SBIR/STTR and Revised Economic Assumptions								320			320
Test and Evaluation Organizations											
TECOM					568		67	1067		1500	3202
APG, MD											
WSMR							25	180			205
White Sands, NM											
Government Furnished Property											
	Contract										
	Method/Type or Funding Vehicle										
Item Description		Award or Obligation Date	Delivery Date		Total Prior to FY 1995		FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Property											
Various Gov't MIPR		Various	Various		267		112	1			380
Sources											
Test and Evaluation Property To Be Determined		Apr 96	Jun 96					33		1548	1581
Subtotal Product Development					20429		13191	10277	2073	7691	53661
Subtotal Support and Management					5154		1884	1157		2000	10195
Subtotal Test and Evaluation					568		92	1280		3048	4988
Total Project					26151		15167	12714	2073	12739	68844

Project DG26

Page 10 of 10 Pages

Exhibit R-3 (PE 0604649A)

767

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									
5 - Engineering and Manufacturing Development		0604710A Night Vision Systems - Engineering Development									
		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		41162	38613	33637	21646	20731	17952	28876	0	Continuing	
DL69 Horizontal Technology Integration Second Generation FLIR (HTI SGF)		24401	28584	13443	3317	0	0	0	0	85097	
DL70 Night Vision Devices Engineering Development		16761	10029	12482	11304	16256	17952	28876	0	Continuing	
DL74 Long Range Advanced Scout Surveillance System (LRAS3)		0	0	7712	7025	4475	0	0	0	19891	

Mission Description and Budget Item Justification: This program element provides night vision technologies required for US defense forces to engage enemy forces twenty four hours a day under conditions with degraded visibility due to darkness, adverse weather and battlefield obscurants. Developments and improvements to high performance night vision electro-optics, laser, thermal and radar systems and systems integration of related multi sensor suites will enable near to long range target identification, acquisition and engagement as well as improve battlefield command and control in "around the clock" combat operations. Project DL69 is focused on inserting key thermal sensor technology into common battle groups. Project DL70 focuses on a variety of night vision electro-optical equipment for use by individual soldiers; and a variety of other systems such as a Synthetic Aperture Radar (SAR), Moving Target Indicator radar (MTI) and the Target Acquisition System (TAS). Project DL74 focuses on a long range multi sensor system utilizing Horizontal Technology Integration Second Generation FLIR (HTI SGF) thermal sensors and other technologies, for use by US Army scout. The projects in this PE support development efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604710A Night Vision Systems - Engineering

Development

PROJECT

DL69

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DL69 - Horizontal Technology Integration Second Generation FLIR (HTI SGF)	24401	28584	13443	3317	0	0	0	0	85097

A. Mission Description and Budget Item Justification- Horizontal Technology Integration Second Generation FLIR (HTI SGF) will enable the Army to insert key thermal sensor technology into the highest priority forces (the M2A3 Bradley Fighting Vehicle System and the M1 Abrams). The HTI SGF will allow all vehicles in a common battle group to see the same thermal image. The HTI SGF development is in two parts, an "A" kit, which is specific to the vehicle, and includes integration and installation, and a "B" kit, which includes the common Forward Looking Infrared (FLIR) sensor and display. Funds in this project will develop the "B" kit.

Acquisition Strategy: The common Second Generation Forward Looking Infrared (FLIR) sensor and display "B" Kit is being developed and fabricated using a competitively awarded cost plus award fee contract.

FY 1995 Accomplishments:

- 23201 Developed and Fabricated Engineering & Manufacturing Development (E & MD) B kit prototypes and pilot line for HTI SGF
- 950 Developed and tested infrared component prototypes
- 250 Initiated integration of infrared component prototypes into "B" kits
- Total 24401

FY 1996 Planned Program:

- 25895 Continue development, fabrication of B kit, integration kits and pilot line
- 810 Begin sight level qualifications (contractor technical testing) of E&MD prototypes for HTI SGF
- 1167 Qualification testing of E&MD B kit prototypes
- 632 SBIR/STTR Reduction not available for execution
- 80 Revised Economic Assumption not available for execution
- Total 28584

FY 1997 Planned Program:

- 12907 Complete development and fabrication of B kit
- 286 Complete sight level qualification testing of E&MD prototypes for HTI SGF
- 250 LRIP Decision for Bradley Fighting Vehicle System M2A3
- Total 13443

Project DL69

Page 2 of 15 Pages

Exhibit R-2 (PE 0604710A)

769

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

BUDGET ACTIVITY

PROJECT

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604710A Night Vision Systems - Engineering

Development

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 19

Appropriated Amount (1996)

Adjustment to FY '996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
--	----------------	----------------	----------------

24924	29387	23406
-------	-------	-------

24401

28873

-289

-9963

24401	28584	13443
-------	-------	-------

Change Summary Explanation:

Funding: FY 1996, Revised economic assumptions, (-289). Realign FY 1997 HTI SGF funds (DL69) to LRAS3 (DL74) and Abrams (0203735A Project D330) to support A Kit development efforts, (-9500). Revised inflation rates, (-463).

C. Other Program Fund

Summary

6.4 RDTE 0604710A, A Kit Lk. 74)

6.7 RDTE 0203735A, A Kit (related)

LRAS3 K38300 OPA2

WTCV G80717 M2A3 Bradley A and B Kit

WTCV GA0700 M1 Abrams A and B Kits

WTCV GA0750 Abrams Upgrade A and B Kit

<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>To</u>	<u>Total</u>
0	0	7712	7025	4475	0	0	0	19891
10441	22438	38113	3600	0	0	0	0	144042
0	0	0	0	18239	45882	46201	47992	158314
0	0	25776	27149	50240	109850	120359	592991	926365
0	0	0	0	0	28423	68032	141705	238160
0	0	22973	106721	106140	94069	88580	253045	671528

The 0203735A program element funds the "A" kit portion of the HTI SGF development, and is broken into the M2A3 Bradley Fighting Vehicle System and the M1 Abrams Tank. WTCV funds the production tails for A and B kit production for these platforms.

D. Schedule Profile

FY 1995

FY 1996

FY 1997

Preliminary Design Review (PDR)

Critical Design Review (CDR)

Initiate Technical Testing

Initiate Operational Testing

Project DL69

Page 3 of 15 Pages

Exhibit R-2 (PE 0604710A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604710A Night Vision Systems - Engineering

DL69

Development

D. Schedule Profile

FY 1995

FY 1996

FY 1997

1

2

3

4

1

2

3

4

Special In-Process Review (SIPR)

Low Rate Initial Production M2A3

Prototype Image Demonstration

B Kit/I BAS Initial Qualification

MIA2 sight Qualification

X*

X

X

*Milestone Completed

Project DL69

Page 4 of 15 Pages

Exhibit R-2 (PE 0604710A)

771

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604710A Night Vision Systems - Engineering Development

PROJECT

DL69

A. Project Cost Breakdown	FY 1995
Primary Hardware Development	20268
Contractor Engineering Support	
Government Engineering Support	2778
Project Management Support	405
Systems Engineering and Producability	950
Revised economic assumption not available for execution	
SBIR/STTR reduction not available for execution	
Total	24401

B. Budget Acquisition History and Planning Information

Performing Organizations		Award or Obligation		Project Office	
Contractor or Government	Method/Type or Funding	Date	Performing Activity	EAC	EAC
Product Development Organizations					
Productibility	Various	March 1994	3876		3876
Contracts					
Texas Instruments, McKinney, TX	C/CPAF	7 July 1994	68195		68195
Support and Management Organizations					
Project Mgmt					
ASARC Support	MIPR				
CECOM NVESD	MIPR				
Test and Evaluation Organizations: None					

* All DT and OT are funded by PEO ASM in the platform funding line. All tests are at the vehicle level

Project DL69

Page 5 of 15 Pages

Exhibit R-3 (PE 0604710A)

772

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604710A Night Vision Systems - Engineering

DL69

Development

Government Furnished Property: None

	Total Prior to FY 1995	FY 1995	FY 1996 712	FY 1997	Budget to Complete	Total Program
Subtotal Funds not available for execution						712
Subtotal Product Development	13979	21218	25872	11443	2756	75268
Subtotal Support and Management		3183	2000	2000	561	7744
Subtotal Test and Evaluation						
Total Project	13979	24401	28584	13443	3317	83724

Project DL69

Page 6 of 15 Pages

Exhibit R-3 (PE 0604710A)

773

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604710A Night Vision Systems - Engineering Development								DL70	
COST (in thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DL70	Night Vision Devices Engineering Development	16761	10029	12482	11304	16256	17952	28876	0	Continuing	

A. Mission Description and Budget Item Justification - Night Vision Devices Engineering Development: This project develops and improves high performance night vision electro-optics, thermal and laser systems, and systems integration of related multi sensor suites to enable near to long range target acquisition and engagement as well as improve battlefield command and control in "around the clock" combat operations. Near term systems in development are: Thermal Weapon Sight (TWS) Pre-planned Product Improvements (P3I) TWS a forward looking infrared (FLIR) used for surveillance and fire control with individual and crew served weapons. The TWS with P3I are a part of the Land Warrior program. Target Acquisition System (TAS) - an active/passive day/night sight for individual soldiers to detect Optical and Electro Optical threat, can be used as a covert illuminator and fire direction pointer. Near term and far term Pre-Planned Product Improvements (P3I) are scheduled for this system. The near term P3I will reduce system weight. The Far term P3I will increase range, add range determination, compass/vertical angle measurement, multispectral capability, Global Positioning System interface, video display, and full digital battlefield capability. Driver's Vision Enhancer (DVE) - a thermal imaging device used for driving Combat, Combat Service, and Combat Service Support vehicles and allows drivers to see obstacles through fog and battlefield obscuration. Lightweight Laser Designator/Rangefinder (LLD/R) - a day/night manportable laser designator/rangefinder capable of designating vehicle targets out to 5km and ranging targets out to 9995 meters and will process target location data for export through a digital interface. Unmanned Aerial Vehicle (UAV) multisensor programs will operationally evaluate the synergism of existing UAV sensors to include Synthetic Aperture Radar (SAR), Infrared Line Scanner (IRLS), FLIR, visible imageries, hyperspectral cameras and Moving Target Indicator (MTI) radars. Elements of the evaluation include sensors, automatic target recognition (ATR) where applicable, commonality of sensor specific ground station hardware and data interconnects.

Acquisition Strategy: The several programs under development in this line (i.e. Thermal Weapon Sight, Target Acquisition System, Driver's View Enhancer and Unmanned Aerial Vehicle Multi Sensor payload) were based on competitively awarded cost plus incentive fee contracts. The exception being the LLD/R which uses a competitively awarded cost sharing type contract.

FY 1995 Accomplishments:

- 2310 Completed testing of TAS
- 8896 Fabricated E&MD prototypes for DVE; began and completed testing
- 1556 Initiated E&MD effort for LLD/R
- 900 Developed P3I Laser Rangefinder (LRF) for TWS
- 3099 Provided support to Land Warrior program
- Total 16761

Project DL70

Page 7 of 15 Pages

Exhibit R-2 (PE 0604710A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604710A Night Vision Systems - Engineering Development

DL70

FY 1996 Planned Program:

- 3303 Develop and fabricate E&MD prototypes for Near Term TAS P3I
- 583 Complete IOT&E for TWS P3I LRF
- 1168 Begin development for DVE P3I prototypes
- 1266 Continue development of LLDR EMD model
- 3466 Initiate UAV multisensor payload
- 214 SBIR/STTR Reduction not available for execution
- 29 Economic Assumption not available for execution
- Total 10029

FY 1997 Planned Program:

- 5835 Develop E&MD prototypes for Far Term TAS P3I
- 2616 Complete development of DVE P3I
- 428 Provide support to Land Warrior program
- 784 Conduct LLDR user test
- 2819 Conduct UAV Multisensor Payload Integration and Demonstration
- Total 12482

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995	FY 1996	FY 1997
17879	10310	12904
17516		
-755		
	10130	
	-101	
		-422
16761	10029	12482

Project DL70

Page 8 of 15 Pages

Exhibit R-2 (PE 0604710A)

775

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604710A Night Vision Systems - Engineering Development

DL70

Change Summary Explanation:

Funding: FY 95 FFRDC/CAS Rescission (-100)

FY 95 FFRXXI Reprogramming to 0604817/D482 (-355)

FY 95 FFRXXI Reprogramming to 0604270/DL18 to fully fund the Shortstop FY 95 contract increment (-300)

FY 96 economic assumptions, (-101)

FY 97 inflation rates, (-422).

Schedule: None

Technical: The Laser Counter Measure System (LCMS) has been restructured and down scoped to the Target Acquisition System (TAS). Initiation of the UAV Multi Sensor integration effort.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total
								Compl	Cost
Night Vision Devices KA3500 OPA2	79810	82454	111872	90487	66906	150342	173279	Continue	Continue

D. Schedule Profile

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total
								Compl	Cost
TWS Limited Production decision	1	2	3	4	1	2	3	4	
TWS Limited Production award	X*								
Initiate TWS user test (IOTE)	X*								
TWS Milestone III Production decision				X					
TWS Production award					X				
TAS Limited Production decision									
TAS Production Award	X*								
Initiate DVE technical test	X*								
Initiate DVE user test	X*								
DVE Limited Production decision for BFVS version									
DVE Limited Production award (BFVS version)									
Initiate DVE Enhancements						X			
Initiate DVE Enhancements DT/OT						X			
Initiate TAS P3I Demonstrator			X*						
Initiate TAS P3I User Evaluation									X

Project DL70

Page 9 of 15 Pages

Exhibit R-2 (PE 0604710A)

776

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996	PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE										PROJECT	
5 - Engineering and Manufacturing Development		0604710A Night Vision Systems - Engineering Development										DL70	
D. Schedule Profile		FY 1995		FY 1996				FY 1997					
		1	2	3	4	1	2	3	4	1	2	3	4
	Initiate UAV Multisensor Integration												
	Conduct UAV Multisensor Evaluation												
	*Milestone Completed												

Exhibit R-2 (PE 0604710A)

Page 10 of 15 Pages

Project DL70

777

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604710A Night Vision Systems - Engineering Development

DL70

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Primary Hardware Development	11803	4760	6326
Contractor Engineering Support	989	1331	1319
Government Engineering Support	1859	1635	2172
Project Management Support	1040	1580	1075
Test and Evaluation	970	480	1590
FFRDC/CAS Rescission	100		
Revised economic assumption not available for execution		29	
SBIR/STTR reduction not available for execution		214	
Total	16761	10029	12482

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Hughes Aircraft Co., El Segundo, CA	C/CPIF	Dec 90	42490	42490	40650	1840	0	0	0	42490
Lockheed-Sanders, Nashua, NH	C/CPIF	Feb 92	18769	18769	17067	1702			0	18769
Magnavox, Mahwah, NJ	C/CPIF	Aug 93	8321	8321	4571	3000	250	500	0	8321
Texas Instruments, McKinney, TX	C/CPIF	Aug 93	11524	11524	7069	3705	250	500	0	11524
TBS (TAS P3I)	C/CPIF	3Q96				0	2591	3826	Continue	Continue
Litton Laser, Apopka, FL	C/Cost Share	Aug 95				1556	1000	0	0	2556

Project DL70

Page 11 of 15 Pages

Exhibit R-3 (PE 0604710A)

778

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604710A Night Vision Systems - Engineering

PROJECT
DL70

Development

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total		Budget to Complete Continue	Total Program Continue
					FY 1995	FY 1996		
TBS (UAV) multisensor)	C/CPIF	1Q96				2000		
Support and Management Organizations								
Project Mgmt					1163	852	990	Continue
CECOM/NVESD	MIPR				3726	653	676	Continue
Other Support	MIPR				1341	75	90	Continue
FERDC/CAS							0	100
Rescission								
Test and Evaluation Organizations								
OPTEC	MIPR				2769	480	1590	Continue
Other Government	MIPR					1635	2810	Continue
Agency								
Government Furnished Property: None								
Subtotal Funds not available for execution						243		Continue
Subtotal Product Development					69357	6091	6326	Continue
Subtotal Support and Management					6230	1580	1756	Continue
Subtotal Test and Evaluation					2769	2115	4400	Continue
Total Project					78356	10029	12482	Continue

Project DL70

Page 12 of 15 Pages

Exhibit R-3 (PE 0604710A)

779

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604710A Night Vision Systems - Engineering Development								DL74	
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DL74	Long Range Advanced Scout Surveillance System (LPAS3)	0	0	7712	7025	4475	0	0	0	19891	
<p>A. Mission Description and Budget Item Justification Project DL74 - Long Range Advanced Scout Surveillance System (LRAS3): This project will develop the Long Range Advanced Scout Surveillance System (LRAS3), which is a long range multi sensor system for US Army scouts which will provide the capability to detect, recognize, identify, range and designate potential targets. Currently, US Army scouts do not have the necessary equipment to perform these functions "around the clock". LRAS3 will utilize the HTI SGF thermal sensor and will enable scouts to function "around the clock" in adverse weather and through battlefield obscurants</p> <p>Acquisition Strategy: This project will pursue a competitive acquisition utilizing best value source selection procedures for the Engineering and Manufacturing Development contract.</p> <p>FY 1995 Accomplishments: Program not funded in FY 1995</p> <p>FY 1996 Planned Program: Program not funded in FY 1996</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 100 Milestone I/II IPR • 335 Conduct Source Selection Evaluation Board for LRAS3 • 7277 Award E&MD contract for LRAS3 <p>Total 7712</p> <p>B. Project Change Summary</p> <p>Previous President's Budget (FY 1996) FY 1997</p> <p>Appropriated Amount (FY 1995) 2985</p> <p>Adjustment to FY 1995 0</p> <p>Appropriated Amount (FY 1996) FY 1996</p> <p>Adjustment to FY 1996 0</p> <p>Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget 4727</p> <p>Current President's Budget Submit 7712</p>											

Project DL74

Page 13 of 15 Pages

Exhibit R-2 (PE 0604710A)

780

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604710A Night Vision Systems - Engineering

DL74

Development

Change Summary Explanation:

Funding: Realign FY 1997 HTI SGF funds (DL69) to LRAS3 (DL74) and Abrams (0203735A Project D330) to support A Kit development efforts. (+5000).
 Revised inflation rates (-273).

C. Other Program Funding Summary

0603774A D131 Budget Activity 4

6.4 RDT&E 0604710A, B Kit (DL69)

LRAS-3 K33300 OPA2

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl Continue	Total Cost Continue
	3145	2879	2829	3151	3110	3534	3507		
	24401	28584	13443	3117	0	0	0		85097
	0	0	0	0	18239	45882	46201	47992	158314

D. Schedule Profile

FY 1995 FY 1996 FY 1997

1

2 3

4

1

2

3

4

1

2

3

4

Milestone I/II IPR

E&MD Contract Award

PDR

CDR

*Milestone Completed

X

X

Project DL74

Page 14 of 15 Pages

Exhibit R-2 (PE 0604710A)

781

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and Equipment

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	23355	17472	78063	65182	63749	22625	23425	Continuing	Continuing
DC40 Unit/Organizational Equipment	1392	4106	1784	1923	1949	1526	1395	Continuing	Continuing
DL40 Clothing and Equipment	5080	2145	4955	3962	4690	3880	4824	Continuing	Continuing
D548 Military Subsistence System	844	823	809	938	1388	1766	1895	Continuing	Continuing
D667 Land Warrior	496	0	48917	37616	20354	0	0	Continuing	Continuing
D668 Soldier Enhancement Program	15543	10398	21598	20743	35368	15453	15311	Continuing	Continuing

Mission Description and Budget Item Justification: Supports Engineering and Manufacturing Development (EMD) and Non-Developmental Item (NDI) evaluation of unit/organizational equipment; weapons/munitions, clothing and individual equipment, fabric shelters, field service equipment, food and food service equipment to enhance soldier efficiency, effectiveness, lethality, sustainability and survivability. New food items and food service equipment will be developed to reduce food service logistics requirements for all four Services. The organizational equipment program supports development of a new generation of field device support items: small, large and collective protective shelters; decontamination items; and improved space heaters to shelter and sustain the soldiers in the field and improve quality of life. The Land Warrior program will produce the first fully integrated fighting system for combat soldiers. The Soldier Enhancement Program provides "soldier items" that can be procured in three years or less. The projects in this Program Element support research efforts in the Engineering and Manufacturing Development phase of the acquisition strategies and are therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and Equipment

DC40

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DC40 Unit/Organizational Equipment	1392	4106	1784	1923	1949	1526	1395	Continuing	Continuing

A. Mission Description and Budget Item Justification: Develop and field soft shelters, showers, latrines and heaters to improve unit sustainability and combat effectiveness. The Force Provider package of tents, laundries, showers, and latrines support improved soldier quality of life as well as humanitarian aid and disaster relief. Improved maintenance tents will ensure continuous operation and combat readiness of helicopters and vehicles. The Family of Space Heaters uses fuel more efficiently and replaces dangerous tent heaters.

Acquisition Strategy: Developments transition to either Defense Logistics Agency for procurement or purchased with OMA.

FY 1995 Accomplishments:

- 597 Completed redesign of the Modular General Purpose Tent System (MGPTS) to provide support options and interchangeability components for increased flexibility and conducted combined Preproduction Qualification Test/Operational Test (PPQT/OT).
- 228 Completed comparison testing of the frame and airbeam versions of the Transportable Helicopter Enclosure (THE) to determine feasibility and effectiveness of support systems for front line maintenance shelters.
- 567 Fabricated 1 test prototypes and completed PPQT of the Space Heater Convective (SHC) to provide safe, efficient and clean heaters in a field environment.

Total 1392

FY 1996 Planned Program:

- 1995 Complete testing and Type Classify latrines and batch laundry as part of the Force Provider pre-planned product improvement (P31) designed to provide rest and refit facilities in an austere environment.
- 320 Complete PPQT and Type Classify the SHC to increase safety, reliability and efficiency of field heaters.
- 45 Complete development and Type Classify the MGPTS.
- 1643 Initiate fabrication of second generation Laundry and Drycleaning System (LADS) prototypes for Technical Testing and Operational Testing (TT/OT) to minimize water requirements for field laundries.
- 91 SBIR/STTR
- 12 Revised Economic Assumption not available for execution

Total 4106

Project DC40

Page 2 of 23 Pages

Exhibit R-2 (PE 0604713A)

784

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE						
5 - Engineering and Manufacturing Development	0604713A Combat Feeding, Clothing, and Equipment						March 1996
FY 1997 Planned Program:							
• 1784 Complete fabrication of second generation LADS prototypes and conduct TT/OT of LADS.							
Total	1784						
B. Project Change Summary							
Previous President's Budget (FY 1996)							
Appropriated Amount (FY 1995)	1422						
Adjustments to FY 1995	1393						
Adjustments to FY 1996	-1						
Appropriated Amount (FY 1996)	4147						
Adjustments to FY 1996	-41						
Adjustments to Budget Year (FY 1997) since FY 1996							
President's Budget							
Current President's Budget Submit	1392						
C. Other Program Funding Summary							
RDTE, 0603747.DCO9, Unit/Org Equipment							
OPA3, M80200, Force Provider							
OPA3, M86200, LADS							
D. Schedule Profile							
Completed PPQT of Space Heater Convective	1	2	3	4	1	2	3
Conduct TT for Force Provider P31 (laundry and latrines)				X*			
Conduct TT/OT of LADS							
TC Modular General Purpose Tent System							
TC Space Heater Convective							
* Completed Milestones							
Project DC40							

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY		PE NUMBER AND TITLE						DATE	PROJECT
5 - Engineering and Manufacturing Development		0604713A Combat Feeding, Clothing, and Equipment						March 1996	DC40
A. Project Cost Breakdown									
Primary Hardware Development		FY 1995	FY 1996	FY 1997					
Total		1392	4106	1784					
		1392	4106	1784					
B. Budget Acquisition History and Planning Information									
Performing Organizations									
Contractor or	Contract								
Government	Method/Type								
Performing	or Funding								
Activity	Vehicle								
	Date								
Product Development Organizations									
SSCOM	In-House								
Acumen	Various								
Foster Miller									
Tech Rsch Grp									
Hunter Mfg									
GTS									
ARO	MIPR								
OGA									
Support and Management Organizations									
SSCOM									
Test and Evaluation Organizations									
TECOM/ATC	MIPR								
CRTC									
WSMR									
* DC40 Program line is ongoing in nature, and is made up of multiple projects which are on separate project schedules, as a result the EAC is not applicable.									
Government Furnished Property: None									
Project DC40		Page 4 of 23 Pages						Exhibit R-3 (PE 0604713A)	

786

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and
Equipment

DC40

Total

Prior to

FY 1995

FY 1997

Budget to
CompleteTotal
Program
ContSubtotal Product Development
Subtotal Support and Management
Subtotal Test and Evaluation
Total Project

4404

770

2395

7569

FY 1996

FY 1997

Cont

Cont

3228

1291

Cont

Cont

378

71

Cont

Cont

500

422

Cont

Cont

4106

1784

Cont

Cont

Project DC40

Page 5 of 23 Pages

Exhibit R-3 (PE 0604713A)

787

UNCLASSIFIED

UNCLASSIFIED

BUDGET ACTIVITY		RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	March 1996	
5 - Engineering and Manufacturing Development		PE NUMBER AND TITLE						PROJECT		
		0604713A Combat Feeding, Clothing, and Equipment						DL40		
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DL40	Clothing and Equipment	5080	2145	4955	3962	4690	3880	4824	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: Develop state-of-the-art individual clothing and equipment to improve the effectiveness, sustainability and quality of life of the individual soldier. Funding shown in FY 1996-FY 1998 reflects transfer of funds from DL40 to OSD PE 0604384BP to support the Chemical/Biological Defense program in accordance with Public Law 103-60 Title XVII.</p> <p>Acquisition Strategy: Soldier Modernization will be accomplished via integrated acquisition programs embodying procurement approaches ranging from NDI/modified NDI through integrated programs such as Land Warrior, Mounted Warrior, and Air Warrior. Acquisition strategies will vary from: 1) quick fixes in 36 months or less from concept to Type Classification (TC) such as Soldier Enhancement Programs (SEP), 2) modular improvements which require limited RDT&E and can be completed in more than 36 months from concept to TC, and 3) more technically challenging areas of integration and digitization in the Land Warrior program.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 3148 Conducted market survey, developed initial design concepts, conducted technical and early user evaluations and/or downselected designs/materials/equipment in design review: Improved Toxicological Agent Protective (TAP) Suit, Personal Ice Cooling System (PICS), Interim Firefighters Suit - Combat, Improved Sun, Wind & Dust Goggles, Body Armor Set Individual Countermine (BASIC) P3I, Modular Body Armor (MBA), Modular Load System (MLS), and Auxiliary Aviation Lighting Devices. 1505 Procured test items and initiated DT/OT: Joint Service Lightweight Integrated Suit Technology (JSLIST) Ensemble (chemical protective suits, boots and gloves), Women's Dress Skirt, Small Arms Overvest (urgent Army requirement), and Vapor Barrier Boot P3I. 427 Completed DT/OT and assessment reports, type classified, and/or completed Technical Data Package and transitioned to production: Women's Dress Ensemble, Maternity Uniform, Ballistic/Laser Eye Protection Spectacle P3I, and Special Protective Eyewear, Cylindrical System. <p>Total 5080</p> <ul style="list-style-type: none"> 264 Refine requirements based upon Operation Joint Endeavor threat, conduct Design Review, finalize component designs, award contract for DT/OT prototypes for BASIC P3I. 887 Conduct mini-test #2 and Design Review, award test item contract, start DT/OT for the Improved TAP Suit. 855 Form Integrated Product Team (IPT) for MBA and MLS, complete Acquisition Strategy for one contract for both systems, conduct pre-proposal conference with draft Request for Proposal (RFP), receive proposals and complete Source Selection. 88 Procure test items and initiate evaluation of the Optional Uniform Fabric. 										

Project DL40

Page 6 of 23 Pages

Exhibit R-2 (PE 0604713A)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0604713A Combat Feeding, Clothing, and Equipment

DL40

45 SBIR/STTR

Total 2145

650 Conduct DT/OT complete assessment reports, obtain MS III approval, transition TDP to DPSC for the BASIC P3I.

Total 4955

FY 1995	FY 1996	FY 1997
---------	---------	---------

2167

<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	To	
2013	3415	3418	3590	3650	4444	3920	<u>Compl</u>	
	2180						Cont	
		1937	5768	9049	6823	10648	Cont	
		19677	35297	39469	40515	31487	Cont	
65465	54564	56339	43104	54841	80248	82820	Cont	
Total	<u>Cost</u>							
	Cont							
2180	2180							

Page 7 of 23 Pages

Exhibit R-2 (PE 0604713A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		DATE		PROJECT					
5 - Engineering and Manufacturing Development		March 1996		DL40					
PE NUMBER AND TITLE		FY 1996		FY 1997					
0604713A Combat Feeding, Clothing, and Equipment		1 2 3 4		1 2 3 4					
D. Schedule Profile		FY 1995		FY 1996					
Conducted Market Surveys: ITAP, PICS, Interim Firefighters Suit-Combat, Improved Sun, Wind & Dust Goggles, BASIC P31, Modular Body Armor, Modular Load Bearing Equipment, and Auxiliary Aviation Lighting Devices		1 2 3 4		1 2 3 4					
		X*							
Conduct Marke. Surveys/Design Reviews: Modular Body Armor, and Modular Load Bearing Equipment		X							
Conduct Market Surveys/Design Reviews: Advanced Combat/Garrison Uniform, Extreme Cold Weather Clothing System Undergarments		X							
Develop initial design concepts for the Lightweight Microclimate Cooling System				X					
Procure test items/initiate DT/OT: Modular Body Armor and Modular Load Bearing Equipment				X					
* Completed Milestones									

Project DL40

Page 8 of 23 Pages

Exhibit R-2 (PE 0604713A)

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and Equipment

PROJECT

DL40

A. Project Cost Breakdown
Primary Hardware Development
Total

FY 1995
5082
5082

FY 1996
2145
2145

FY 1997
4955
4995

B. Budget Acquisition History and Planning Information: None

Project DL40

Page 9 of 23 Pages

Exhibit R-3 (PE 0604713A)

791

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604713A Combat Feeding, Clothing, and Equipment								D548	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D548	Military Subsistence System	844	823	809	938	1388	1766	1895	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Engineering and Manufacturing Development (EMD) and Non-Developmental Item (NDI) evaluation of food and food service equipment to enhance efficiency and survivability. New food items and food service equipment will be developed to reduce food service logistics requirements for all four services. Development of Joint Service Food/Food Service Equipment to improve individual combat effectiveness and reduce logistics burden and Operation and Support costs of subsistence support for service men & women. Develop multi-fuel, rapidly deployable field food service equipment to support combat, humanitarian missions and operations-other-than-war. Improve equipment to enhance safety in food service, utilize battlefield fuels and decrease fuel and water requirements. Program is reviewed and validated twice annually by the DoD Food and Nutrition Research and Engineering Board as part of the Joint Service DoD Food Program.</p> <p>Acquisition Strategy: Developments transition to Defense Personnel Supply Center (DPSC) for procurement or to Other Procurement, Army depending upon procurement appropriation.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 242 Conducted technical/operational testing of a safer, more efficient and supportable, Powered Multifuel Burner (PMB) to replace the M2 gasoline burner used to heat and cook rations. 191 Completed Technical Testing of the Initial Deployment Kitchen for the Air Force enhancing their force projection capability to bare base. 411 Completed fabrication of engineering prototype of highly mobile Containerized Kitchen. Total 844 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 368 Complete technical/operational testing of the PMB designed to use current battlefield fuels for safer, more efficient heating. Initiate Pre-Planned Product Improvement (P3I) program to replace the battery with a thermoelectric power supply on the PMB. 98 Conduct user testing of the Air Force Initial Deployment Kitchen and transition TDP to procurement to increase mission responsiveness and improve customer satisfaction by means of an all-electric, rapidly deployable, all-climate feeding system. 336 Fabricate test prototypes and initiate Development Testing/Early User Test and Evaluation (DT/EUT&E) on the Containerized Kitchen to increase flexibility and efficiency of future field feeding system. 18 SUPR/STTR 3 Revised Economic Assumption not available for execution Total 823 											

Project D548

Page 10 of 23 Pages

Exhibit R-2 (PE 0604713A)

792

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and Equipment

D548

FY 1997 Planned Program:

- 377 Complete P3I on the thermoelectric power supply for the PMB
- 263 Complete DT/EUT&E and Type Classify the Containerized Kitchen.
- 169 Conduct test and evaluation of modifications to Army Field Feeding Equipment to improve performance in cold weather environments.

Total 809

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Value (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current President's Budget Submit

FY 1995

864

846

-2

830

-7

-28

809

FY 1996

844

837

C. Other Program Funding Summary

RDTE, 0603747.D610, Food Adv Dev

OPA3, M86400, Kitchen, Containerized, Field

OPA3, ML5325, Items Less Than \$2.0M (CSS-

EQ)

FY 1995

2091

2103

2152

2688

2146

FY 1996

1946

2429

2774

3343

7496

FY 1997

2774

7700

5890

6502

7855

FY 1998

2429

2774

3343

7496

7855

FY 2001

3600

7565

7855

To

Compl

Cont

Cont

Cont

Total

Cost

Cont

Cont

Cont

D. Schedule Profile

FY 1995

2

3

FY 1996

2

3

FY 1997

2

3

4

3

4

Complete DT/OT of Powered Multifuel

Burner

Conducted DT/OT of Initial Deployment

Kitchen (IDK)

Complete TDP of IDK

Conduct DT/OT of Containerized Field

Kitchen

X

X

Project D548

Page 11 of 23 Pages

Exhibit R-2 (PE 0604713A)

793

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and Equipment

D548

A. Project Cost Breakdown

Primary Hardware Development

Total

FY 1995

844

844

FY 1996

823

823

FY 1997

809

809

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Government

Performing

Activity

Method/Type

or Funding

Vehicle

Award or

Obligation

Date

Performing

Activity

EAC

Project

Office

EAC

Total

Prior to

FY 1995

FY 1996

FY 1997

Budget to

Complete

Total

Product Development Organizations

SSCOM

GTS

Hunter Mfg

ATCOM

MIPR

Support and Management Organizations

SSCOM

Test and Evaluation Organizations

TECOM/ATC

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

4833

626

61

35

44

78

321

1084

4833

321

1084

6238

722

44

78

844

583

40

200

823

517

40

252

809

336

250

317

200

40

200

40

252

200

583

40

200

823

517

40

252

809

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Cont

Project D548

Page 13 of 23 Pages

Exhibit R-3 (PE 0604713A)

795

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604713A Combat Feeding, Clothing, and Equipment								D667	
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D667	Land Warrior	496	0	48917	37616	20354	0	0	Continuing	Continuing	

A. Mission Description and Budget Item Justification: Land Warrior (LW) is an integrated fighting system for dismounted combat soldiers. The LW program will enhance the soldier's battlefield capabilities through the development and integration of an assortment of Army system/components and technologies into a cohesive, timely, and combat effective system. These systems/components include an integrated individual soldier computer/radio, enhancements to protective clothing and individual equipment, integrated headgear with helmet mounted display and image intensifier, and modular weapon system with thermal weapon sight, infrared aiming light, laser rangefinder, digital compass, video camera, and close combat optic. LW will bring the dismounted soldier into the digital battlefield.

Acquisition Strategy: The LW Engineering and Manufacturing Development (EMD) program is designed to field currently existing/mature technologies to meet soldier requirement deficiencies. Per Congressional direction, the Generation II Soldier (GEN II) Science and Technology (S&T) program has been merged with the LW program. The GEN II S&T program has been restructured to develop advanced technology components for insertion into the LW consolidated program. An Integrated Product Team (IPT) was formed to determine which technologies from the GEN II S&T program will be integrated into the LW program.

FY 1995 Accomplishments:

- 284 Continued development of an Advanced CVC helmet to support the MW program.
- 24 Conducted market surveys to evaluate state-of-the-art headsets to determine the technical feasibility of cordless communications.
- 188 Prepared documentation in preparation of Milestone I for Mounted/Air Warriors.
- Total 496

FY 1996 Planned Program: Contained in RDTE, 0603001.DJ50, Force XXI Soldier.

FY 1997 Planned Program:

- 5878 Fabricate LW prototypes for Developmental Testing (DT)
- 10900 Conduct V DT (contractor testing and government testing) and prepare test support package.
- 15150 Fix deficiencies, finalize LW hardware/software design/integration, and conduct independent verification and validation of software.
- 11050 Implement LW functional plans: Integrated Logistics Support (ILS), configuration management, etc.; publish LW draft system manuals; and conduct maintenance training in preparation for the Logistics Demo.
- 3939 Program Management and government oversight of contractor effort.

FY 1997 Planned Program: (continued)

Project D667

Page 14 of 23 Pages

Exhibit R-2 (PE 0604713A)

796

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and Equipment

PROJECT

D667

- 2000 Procurement of LW test items for IO'E.

Total 48917

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current President's Budget Submit

C. Other Program Funding Summary

RDTE. 0603001.DJ59, Force XXI Soldier

RDTE, 0603747.D603, Land Warrior

OPA3 M80500. Enhanced Land Warrior

WTCV GB3007. Mod Wpn Sys - M4 Carbine Mod

WTCV GZ2800 Mod Wpn Sys (M16/M203)

D. Schedule Profile

Contract Awarded

Early Operational Experimentation (EOE)

Hardware Preliminary Design Review

(PDR)

1.1.1. I W Software Design Review and Mock-

LINE

EOE Hardware Critical Design Review

(CDR)

FOE

Task Force XXI

Project D667

Page 15 of 23 Pages

Exhibit R-2 (PE 0604713A)

797

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
5 - Engineering and Manufacturing Development	0604713A Combat Feeding, Clothing, and Equipment		D667
D. Schedule Profile			
	FY 1995	FY 1996	FY 1997
	1 2 3 4	1 2 3 4	1 2 3 4
LW CDR			
Fabricate/Deliver DT prototypes			X
Contractor Production Qualification Test			X
* Completed Milestones			X

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and Equipment

D667

	FY 1995	FY 1996	FY 1997
A. Project Cost Breakdown			
System Engineering and Program Management			24480
System Test and Evaluation			12220
Prototype Development and Manufacturing			6717
Other RDTE Costs	496		500
Total	496		48917

B. Budget Acquisition History and Planning Information:

Performing Organizations

Contractor or Government

Method/Type or Funding

Award or Obligation

Date

Performing Activity

Project Office EAC

Total Prior to FY 1995

FY 1996

FY 1997

Budget to Complete

Total Program

Product Development Organizations

Hughes

Jul 95

Support and Management Organizations

SSCOM

CECOM

TACOM (PM-SA)

ARL

Modern Tech Corp

Test and Evaluation Organizations

ARL-SLAD

OPTEC

TECOM

AMSAA

IV&V Contractor

244

35497

Cont

252

8170

Cont

5250

Cont

Cont

Project D667

Page 17 of 23 Pages

Exhibit R-3 (PE 0604713A)

799

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT D667
5 - Engineering and Manufacturing Development		0604713A Combat Feeding, Clothing, and Equipment			
Government Furnished Property: None					
	Total				
	Prior to				
	<u>FY 1995</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	
		244		35497	
				8170	
		252		5250	
		496		48917	
Subtotal Product Development					
Subtotal Support and Management					
Subtotal Test and Evaluation					
Total Project					
			Budget to Complete	Program Cont	
			Cont	Cont	
			Cont	Cont	
			Cont	Cont	
			Cont	Cont	

Project D667

Page 18 of 23 Pages

Exhibit R-3 (PE 0604713A)

Project D667

Page 18 of 23 Pages

Exhibit R-3 (PE 0604713A)

800

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and

D668

Equipment

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D668 Soldier Enhancement Program	15543	10398	21598	20743	35368	15453	15311	Continuing	Continuing

A. Mission Description and Budget Item Justification: The objective of the Soldier Enhancement Program (SEP) is to increase the lethality, command and control, sustainability, mobility, and survivability of the soldier through accelerated acquisition of lighter, more lethal weapons and improved "soldier items" including lighter, more comfortable load-bearing equipment, field gear, survivability items, communications equipment, and navigation aids. For SEP purposes, soldiers are managed in three categories: dismounted soldiers, combat crews (air and ground), and other soldiers. Projects generally take three years to complete.

Acquisition Strategy: SEP procurement consists of Non-Developmental Items (NDI) or modified NDI that can be fielded in three years or less. Items that are technologically challenging requiring more than three years development are pursued under the appropriate system area. SEP items are reviewed and approved for development in FY 1996 and begin development in FY 1997. Procurement varies by appropriation.

FY 1995 Accomplishments:

- 4408 Completed development/type classified: XM144 Spotting Scope, Dual Mount, M203 for M4 Carbine, Multiple Magazine Holder, M249 Collapsible Buttstock, .50 Caliber Multiple Purpose Round, Launched Grapnel Hook, Mounted Crewman Cold/Wet Glove, Enhanced Tactical Load Bearing Vest, Lightweight Underwear, 2nd Gen ECWCS, Improved Butt Pack, Improved Hot Weather Boot, Improved Shelter Half, Electric Tool Supply Catalog, Lightweight Video Reconnaissance System, Individual Soldier Enhanced Ration, Improved Rainsuit, and Interim Water Individual Purification System.
- 7983 Continued development/procured prototypes and/or tested: Modular Weapon System, 40mm IR Illumination Round, HMMWV Mount, Surveillance BDA Device, M24 Flash Suppressor/Blast Attenuator, 5.56 Dim Tracer, Miniature Binoculars, Portable Periscope, Small Unit Shower, Improved Chemical/Biological Glove, Inconspicuous Body Armor, Mounted Crewman Boot, Lightweight Chemical Overgarment, Fighting Position Excavator, Soldier Fighting Cover, Fighting Position Revetment Kit, Monocular Night Vision Device, Lightweight Leader Computer, and 40mm Smoke Projectile.
- 3082 Began market surveys and/or development of FY 1995 new starts or redirections: Armor Crew/Infantry Protective Mask, Individual Soldier Radio, Medium Machine Gun, Machine Gun Optics, Improved Floatation Device, Individual Sandbagging Accessory, and XM84 Stun Hand Grenade II.
- 70 Terminated: Trigger Finger Mitten, Individual Air Activated Catalytic Heater, Stun Grenade #20, and Face Paint programs.

Total 15543

Project D668

Page 19 of 23 Pages

Exhibit R-2 (PE 0604713A)

801

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
5 - Engineering and Manufacturing Development	0604713A Combat Feeding, Clothing, and Equipment	March 1996	D668
<p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 3375 Complete development/type classify: 40mm IR Illumination Round, HMMWV Mount, Medium Machine Gun, M24 Flash Suppressor/Blast Attenuator, 5.56 Dim Tracer, Miniature Binoculars, Portable Periscope, Small Unit Shower, Mounted Crewman Boot, Improved PASGT Helmet Suspension, Combat Medic Vest, Improved Flotation Device, Inconspicuous Body Armor, Individual Sand Bagging Accessory, Fighting Position Excavator, Soldier Fighting Cover, Fighting Position Revetment Kit, 40mm Smoke Projectile, Armor Crew/Infantry Mask, and Selectable Attack Munitions. 4888 Continue development/procure prototypes and/or test: Modular Weapon System, Surveillance BDA Device, Machine Gun Optics, XM84 Stun Hand Grenade II, Lightweight Chemical Overgarment, Improved Chemical/Biological Glove, Enhanced Incendiary Grenade, and Individual Soldier Radio. 1796 Initiate market surveys and/or development: Commercial Boot Survey, Midsize Riot Control Dispenser, Less than Lethal 40mm Grenade, Shin/Knee Guards for Riot Control, Anti-Reflection Shields, Compression Sack, and Less than Lethal 5.56mm Cartridge. 0 Terminated: Lightweight Leader Computer 219 SBIR/STTR 120 Revised Economic Assumption not available for execution Total 10398 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 2187 Complete development/type classify: Modular Weapon System, Surveillance BDA Device, Machine Gun Optics, XM84 Stun Hand Grenade II, Anti Reflection Shields, Lightweight Chemical Overgarment, Improved Chemical/Biological Glove, Shin/Knee Guards for Riot Control, and Individual Soldier Radio. 3460 Continue development/procure prototypes and/or test: Less than Lethal 40MM Grenade, Less than Lethal 5.56MM Cartridge, Compression Sack, Enhanced Incendiary Grenade, and Midsize Riot Control Dispenser. 3282 Approved to begin development: Heavy Sniper Weapon System, M249 Feed Tray Cover, M249 Flexmount, M4 Improved Buttstock, Weapon Flashlight, Close Quarters Battle Sling for the M4 Carbine, Shoulder Holster for 9mm Pistol (Left/Right Handed), Pistol Belt Extender, Improved Underlying Insulating Layers for ECWCS, Alternate Wear Hot Weather Boot, Extreme Cold Weather Boot, Ballistic/Non-Ballistic Face and Body Shield, Canteen Cup Cooler, Fuel Bar, and Physical Fitness Uniform. 12669 Initiate market surveys/development on new items, in the process of approval, to begin development in FY 1997. Total 21598 			

Project D668

Page 20 of 23 Pages

Exhibit R-2 (PE 0604713A)

802

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and Equipment

D668

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	15887	10690	10321
Appropriated Amount (FY 1995)	15553		
Adjustment to FY 1995	-10		
Appropriated Amount (FY 1996)		10503	
Adjustment to FY 1996		-105	11277
Adjustments to Budget Year (FY 1997) since FY 1996			
President's Budget	15543	10398	21598
Current President's Budget Submit			

Change Summary Explanation: Funding increased to leverage "soldier items" available to begin development from industry/government initiatives, but previously unavailable to the Army due to prior funding constraints.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl Cont	Total Cost Cont
OPA2, K30800, Lightweight Video Reconnaissance System	2210	2314	2592	3262	4004	4705	5606	Cont	Cont
OPA3, MA6800, Soldier Enhancement						18781	19104	Cont	Cont
WTCV, GC0076, Small Arms (SEP)		2350	5845	4236	5671	6573	6989	Cont	Cont
WTCV, GZ1290, Squad Automatic Weapon (MODS)		1943						Cont	1943
WTCV, GZ2800, Modified Weapons Systems (M16/M203)	709	2751	5531	7706	7152				25879
WTCV, GB3007, Modified Weapons Systems (M4 Carbine)		900	2116	2181	2388				7585
PAA, F88000 CTG Cal .50 (M904)/SLAPT		1018		336	825	742	883	Cont	Cont
OMA, 114092000, Central Funding and Fielding	65465	54564	56339	43104	54841	80248	82820	Cont	Cont

Project D668

Page 21 of 23 Pages

Exhibit R-2 (PE 0604713A)

803

UNCLASSIFIED

UNCLASSIFIED

RDT BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604713A Combat Feeding, Clothing, and Equipment

D668

D. Schedule Profile:

	FY 1995			FY 1996			FY 1997		
	1	2	3	4	1	2	3	4	
SEP Requirements Reviews		X*							
SEP Projects Reviews						X	X	X	

*Completed Milestones

Note: Numerous individual projects are ongoing under the Soldier Enhancement Program (SEP) and each project has its own milestone schedule.

Project D668

Page 22 of 23 Pages

Exhibit R-2 (PE 0604713A)

804

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	March 1996																				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																					
5 - Engineering and Manufacturing Development	0604713A Combat Feeding, Clothing, and Equipment	D668																					
<table border="1"> <thead> <tr> <th></th> <th><u>FY 1995</u></th> <th><u>FY 1996</u></th> <th><u>FY 1997</u></th> </tr> </thead> <tbody> <tr> <td>A. Project Cost Breakdown</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Soldier Enhancement Program</td> <td>15543</td> <td>10398</td> <td>21598</td> </tr> <tr> <td>Total</td> <td>15543</td> <td>10398</td> <td>21598</td> </tr> <tr> <td colspan="4">B. Budget Acquisition History and Planning Information: None</td> </tr> </tbody> </table>					<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	A. Project Cost Breakdown				Soldier Enhancement Program	15543	10398	21598	Total	15543	10398	21598	B. Budget Acquisition History and Planning Information: None			
	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>																				
A. Project Cost Breakdown																							
Soldier Enhancement Program	15543	10398	21598																				
Total	15543	10398	21598																				
B. Budget Acquisition History and Planning Information: None																							

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (FE) Cost	47886	50878	42865	45251	39899	60715	42831	Continuing	Continuing
DC82 Louisiana Maneuvers	5720	5810	0	0	0	0	0	0	11530
DC91 Distributive Interactive Simulation	3373	5972	0	0	0	0	0	0	9345
D241 Non-System Training Devices	25876	27354	29752	31390	26925	46444	28419	Continuing	Continuing
D396 Tactical Simulation (TIARA)	3376	2025	2781	3100	2295	3821	3789	Continuing	Continuing
D573 STRICOM and Naval Air Warfare Center Training Systems Division	9541	9717	10332	10761	10679	10450	10623	Continuing	Continuing

Mission Description and Budget Item Justification: Program Element funds engineering development of Non-System Training Devices to support force-on-force training at the Combat Training Centers (CTC), general military training and training on more than one item/system, as compared with system devices which are developed in support of a specific item/weapon system. Training devices and training simulations provide force multipliers that improve combat effectiveness by providing realistic training while helping to control rapidly escalating costs. Training devices maximize the transfer of knowledge, skills and experience from the training situation to a combat situation. Force-on-force training at the National Training Center (NTC), Ft. Irwin, CA; Joint Readiness Training Center (JRTC), Ft. Polk, LA, and Combat Maneuver Training Center (CMTC), Hohenfels, Germany; and battle staff training in Battle Command Training Program (BCTP) will provide increased combat readiness through realistic collective training in low, mid, and high intensity scenarios. Project DC82, Louisiana Maneuvers, is intended to energize and guide the restructuring of the Army while simultaneously keeping it combat-ready for any contingency. Project DC91, Distributive Interactive Simulation (DIS), includes engineering development of techniques and technology for DIS and related simulations and simulator efforts (transferred to PE 0604760 in FY97). Project D241, Non-System Training Devices-Combined Arms, develops simulation training devices for Army-wide use, including the CTCs. Project D396, Tactical Simulation, is an intelligence simulation/driver for both training (intelligence driver for Corps Battle Simulation (CBS)) and testing. Project D573, STRICOM/Naval Air Warfare Center Training Systems Division (NAWCTSD) Support, funds in-house costs of project support by US Army Simulation, Training and Instrumentation Command (STRICOM) and NAWCTSD. This Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

DC82

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DC82 Louisiana Maneuvers	5720	5810	0	0	0	0	0	0	11530

A. Mission Description and Budget Item Justification: DC82 - Louisiana Maneuvers (LAM): LAM will serve as a laboratory for the Army to practice its roles and missions, to develop and explore options, to assess and direct progress, to provide a framework for decisions by senior leaders, and to facilitate the Army's transformation. LAM will consist of a series of related exercises forming a campaign to assess the Army of the 21st century in areas of policy, doctrine, organization, training, materiel, leader development, and soldier issues shaping the force. As an evolving process, LAM will exploit the results and outcomes of each exercise by incorporating lessons learned in order to enhance the value of follow-on exercises. Overall, LAM will focus the Army's self-assessment of institutional effectiveness, provide direction for change, and orient the Army's leadership to accomplish the national military strategy with available resources.

Acquisition Strategy: Competitive development.

FY 1995 Accomplishments:

- 1296 Continued development of synthetic environment and simulation linkages for the Army Experiment - based on the 1994 Experiment.
- 500 Development of Synthetic Theater of War (STOW)
- 3924 Investigation and tool development on issues such as Battlefield Visualization, Total Asset Visibility, Acquisition Streamlining, Interface between Black and White Space Products and Technologies, Assess and Leverage Advanced Theater Missile Defense (TMD), Commanders View of the Battlefield/Enhanced TMD, Tailorable Force Package, Mobilization and STOW-Europe.

Total 5720

FY 1996 Planned Program:

- 1473 Continue development of synthetic environment and simulation linkages for the Army Experiment - based on the 1994 Experiment.
- 1190 Continue development of Synthetic Theater of War (STOW)
- 3000 Investigation and tool development on issues such as Battlefield Visualization, Total Asset Visibility, Acquisition Streamlining, Commanders View of the Battlefield/Enhanced Theater Missile Defense and Mobilization.
- 17 Revised Economic Assumption not available for execution.
- 130 Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)

Total 5810

FY 1997 Planned Program: Program not funded in FY 97

Project DC82

Page 2 of 18 Pages

Exhibit R-2 (PE 0604715A)

807

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0604715A Non-System Training Devices -

DC82

DC82

Previous President's Budget 996)

Previous President's Budget

Appropriated Value (FY 1

Adjustments to FY 1995

Appropriated Amount (FY

Adjustment to FY 1996

Adjustments to Budget Year

FY 1996 President's Bu

Current President's Budget

Change Summary Explana

Funding: FY 97..

C. Other Program Fund

Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains.

OPA2, Appropriation

BE4162 MACOM Automata

100

D. Schedule Profile

1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50
 51
 52
 53
 54
 55
 56
 57
 58
 59
 60
 61
 62
 63
 64
 65
 66
 67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99
 100
 101
 102
 103
 104
 105
 106
 107
 108
 109
 110
 111
 112
 113
 114
 115
 116
 117
 118
 119
 120
 121
 122
 123
 124
 125
 126
 127
 128
 129
 130
 131
 132
 133
 134
 135
 136
 137
 138
 139
 140
 141
 142
 143
 144
 145
 146
 147
 148
 149
 150
 151
 152
 153
 154
 155
 156
 157
 158
 159
 160
 161
 162
 163
 164
 165
 166
 167
 168
 169
 170
 171
 172
 173
 174
 175
 176
 177
 178
 179
 180
 181
 182
 183
 184
 185
 186
 187
 188
 189
 190
 191
 192
 193
 194
 195
 196
 197
 198
 199
 200
 201
 202
 203
 204
 205
 206
 207
 208
 209
 210
 211
 212
 213
 214
 215
 216
 217
 218
 219
 220
 221
 222
 223
 224
 225
 226
 227
 228
 229
 230
 231
 232
 233
 234
 235
 236
 237
 238
 239
 240
 241
 242
 243
 244
 245
 246
 247
 248
 249
 250
 251
 252
 253
 254
 255
 256
 257
 258
 259
 260
 261
 262
 263
 264
 265
 266
 267
 268
 269
 270
 271
 272
 273
 274
 275
 276
 277
 278
 279
 280
 281
 282
 283
 284
 285
 286
 287
 288
 289
 290
 291
 292
 293
 294
 295
 296
 297
 298
 299
 300
 301
 302
 303
 304
 305
 306
 307
 308
 309
 310
 311
 312
 313
 314
 315
 316
 317
 318
 319
 320
 321
 322
 323
 324
 325
 326
 327
 328
 329
 330
 331
 332
 333
 334
 335
 336
 337
 338
 339
 340
 341
 342
 343
 344
 345
 346
 347
 348
 349
 350
 351
 352
 353
 354
 355
 356
 357
 358
 359
 360
 361
 362
 363
 364
 365
 366
 367
 368
 369
 370
 371
 372
 373
 374
 375
 376
 377
 378
 379
 380
 381
 382
 383
 384
 385
 386
 387
 388
 389
 390
 391
 392
 393
 394
 395
 396
 397
 398
 399
 400
 401
 402
 403
 404
 405
 406
 407
 408
 409
 410
 411
 412
 413
 414
 415
 416
 417
 418
 419
 420
 421
 422
 423
 424
 425
 426
 427
 428
 429
 430
 431
 432
 433
 434
 435
 436
 437
 438
 439
 440
 441
 442
 443
 444
 445
 446
 447
 448
 449
 450
 451
 452
 453
 454
 455
 456
 457
 458
 459
 460
 461
 462
 463
 464
 465
 466
 467
 468
 469
 470
 471
 472
 473
 474
 475
 476
 477
 478
 479
 480
 481
 482
 483
 484
 485
 486
 487
 488
 489
 490
 491
 492
 493
 494
 495
 496
 497
 498
 499
 500
 501
 502
 503
 504
 505
 506
 507
 508
 509
 510
 511
 512
 513
 514
 515
 516
 517
 518
 519
 520
 521
 522
 523
 524
 525

Conduct SLOW-E Experiments

Conduct SLOW-E Experiments

Complete Model for Lallo

Package

Conduct IML Experiment

Conduct Total Asset Visit

Acquisition suite aiming for Complete Synthetic Environments

Complete Synthetic Environments

Complete Symmetric EIVM

100

Project DC82



●

Age Group	U.S. should take action (%)	U.S. should not take action (%)
18-29	~65	~35
30-49	~75	~25
50-69	~85	~15
70+	~90	~10

Page 3 of 18 Pages

Exhibit R-2 (PE 0604715A)

808

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

DC82

A. Project Cost Breakdown

	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
Software Development	4435	4763	0
Integrated Logistic Support	1285	900	
Revised Economic Assessment not available for execution		17	
SBIR/STTR		130	
Total	5720	5810	

B. Budget Acquisition History and Planning Information: Not Applicable

Project DC82

Page 4 of 18 Pages

Exhibit R-3 (PE 0604715A)

809

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									PROJECT
5 - Engineering and Manufacturing Development		0604715A Non-System Training Devices - Engineering Development									DC91
	COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DC91 Distributive Interactive Simulation		3373	5972	0	0	0	0	0	0	9345	
<p>A. Mission Description and Budget Item Justification: DC91 - Distributive Interactive Simulation (DIS) - This project focuses on engineering development of techniques and DIS technology of wide area simulation networking in support of modeling and simulation, doctrinal development, training, and operations, utilizing live, virtual and constructive simulations. Effective FY 97 this project was transferred to PE 0604760A which more clearly describes the program effort.</p> <p>Acquisition Strategy: Competitive development leading to competitive procurement against performance specifications.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 1415 Continued DIS site operations 1958 Initiated systems engineering and integration contract Total 3373 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 1348 Provide system engineering, configuration management, systems interoperability and standards development for the Army Synthetic Environment. 950 DIS verification, validation and accreditation methodology. 531 Develop enhancements to modular semi-automated forces software. 2993 Continue engineering and development of Battlilab Reconfigurable Simulators. 17 Revised Economic Assumption not available for execution. 133 Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR) Total 5972 <p>FY 1997 Planned Program: Project transferred to PE 0604760A, Project DC 77, Interactive Simulation</p>											

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

DC91

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	3445	6139	3745
Appropriated Amount (FY 1995)	3373		
Adjustments to FY 1995		6032	
Appropriated Amount (FY 1996)		-60	-3745
Adjustment to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			0
Current President's Budget Submit	3373	5972	0

Change Summary Explanation:

Funding: FY97 Current Budget Estimate Submission reflects transfer of Project DC91 to PE 0604760A

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
RDTE, Budget Activity 5	2279							0	2279
PE 0604760A Project DC81 Battle Lab Reconfigurable Simulators	8063							0	8063
RDTE, Budget Activity 4									
PE 0603760A Project DC80 Battle Lab Reconfigurable Simulators		12222	13335	16480	7828	3928	3153		Cont'd
OPA 3, Appropriation KA6000, Recon Simulators		12100	11100	12300	12400	12500	12600		Cont'd
OMA, Reconfigurable Simulators									

D. Schedule Profile

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
1	2	3	4	1	2	3	4
				X*			
					X		
					X		
					X*		

Award Contract
DIS Verification and Validation
Simulator upgrades
Reconfigurable Simulator Contract

* Completed Milestones

Project DC91

Page 6 of 18 Pages

Exhibit R-2 (PE 0604715A)

811

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development	0604715A Non-System Training Devices - Engineering Development			DC91
A. Project Cost Breakdown				
Operate DIS facilities	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	
Award Contract	1415			
Develop module definition for Soldier Combat Service Support and early entry SIMS	1958	2334		
Simulation Software upgrades		1255		
DIS Verification and Validation		2233		
Revised Economic Assessment not available for execution		17		
SBIR/STTR		133		
Total	3373	5972		
B. Budget Acquisition History and Planning Information: Not Applicable				
Project DC91				
Page 7 of 18 Pages			Exhibit R-3 (PE 0604715A)	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604715A Non-System Training Devices - Engineering Development								D241	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D241	Non-System Training Devices	25876	27354	29752	31390	26925	46444	28419	Continuing	Continuing	

A. Mission Description and Budget Item Justification: D241 - NSTD Combined Arms: This project is used to develop prototype training devices to support Combined Arms (Infantry, Armor, Aviation, Air Defense, Engineer, Chemical, and Support troops) training and multi-system training within the Army, to include the Reserve Components. Corps Battle Simulation (CBS) is the Army's standard command and staff training simulation at the corps/division level. Brigade/Battalion Battle Simulation (BBS) is a simulation that trains commanders and their staff in command & control skills via two sided, free play, real time computer driven exercises. Combat Service Support Training Simulation System (CSSTSS) is a training simulation which supports training at battalions through echelons-above-corps levels to provide the level of detail required to train logistics commanders and staffs. Warfighter Simulation (WARSIM) will be the next generation battle simulation to replace CBS and BBS. WARSIM will utilize current technology to efficiently provide training support and linkage to other simulations and simulators. WARSIM will comply with DIS standards and open architecture to meet the Army's training requirements into the next century. Multiple Integrated Laser Engagement Simulation 2000 (MILES 2000) will provide additional cost effective weapon system capabilities during tactical engagement exercises. Simulated Area Weapons Effects-Radio Frequency (SAWE-RF) simulates area weapons effects using distributed processing techniques and a radio frequency communications system. Guard Unit Armory Device Full Crew Interactive Simulation Trainer - Armor (GUARDFIST I) provides reserve components armor battalions full crew gunnery sustainment training. This project funds the development of training devices, simulators, simulations and instrumentation for the Combat Training Centers (CTC's) to include Opposing Forces Surrogate Vehicles (OSV's) for display of doctrinally correct threat at the CTC's. The Air Ground Engagement System II (AGES II) will permit the inclusion of aviation assets in MILES tactical engagement exercises. Devices developed will enable the Army to train units collectively to obtain synergistic results through the employment of weapons and support systems in their respective battlefield roles. The Fire Support Combined Arms Tactical Trainer (FSCATT), provides for initial and sustainment gunnery training, and can be linked as part of the CATT family. FSCATT is designated as the Army's only defense acquisition pilot program IAW the Federal Acquisition Streamlining Act (FASTA).

Acquisition Strategy: Competitive development efforts leading to competitive procurement against performance specifications.

FY 1995 Accomplishments:

- 1488 Initiated development of CBS 1.5.3
- 5755 Initiated development of FSCATT Phase I
- 1445 Development of AGES II upgrades
- 7500 Development of CSSTSS
- 1480 Continued development of devices, simulators and simulations to support training at the CTCs (i.e. NTC, JRTC, CMTC, and BCTP), to include CTC-IS Ages II
- 4735 Awarded Engineering Manufacturing and Development (EMD) contract to 3 contractors for future downselect, WARSIM 2000

Project D241

Page 8 of 18 Pages

Exhibit R-2 (PE 0604715A)

813

UNCLASSIFIED

UNCLASSIFIED

RD & E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE	March 1996	D241
5 - Engineering and Manufacturing Development	0604715A Non-System Training Devices - Engineering Development		
FY 1995 Accomplishments: (continued)			
•	580 Continued limited BBS enhancements		
•	731 Continued enhancements of BCTP AAR for Armywide CBS		
•	500 Completed development of M113 OSV		
•	1487 Completed development of CBS 1.5.2		
•	175 Completed Initial Operational Test and Evaluation of GUARDFIST I		
Total			25876
FY 1996 Planned Program:			
•	568 Continue limited BBS enhancements		
•	1790 Complete development of CSSTSS		
•	6484 Continue development of devices, simulators and simulations to support training at the NTC, JRTC, & CMTC		
•	3310 Complete CBS 1.5.3 and continue limited enhancements to CBS		
•	10566 Exercise contract option to downselect to prime contractor for WARSIM 2000 EMD		
•	3947 Continue development of FSCATT Phase I		
•	78 Revised Economic Assumption not available for execution.		
•	611 Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)		
Total			27354
FY 1997 Planned Program:			
•	21603 Development of WARSIM 2000 EMD.		
•	859 Initiate development MILES 2000 for new weapon systems (i.e., armored gun system and Bradley A3)		
•	3929 Complete development of FSCATT Phase I		
•	3361 Continue limited enhancements to CBS		
Total			29752

Project D241

Page 9 of 18 Pages

Exhibit R-2 (PE 0604715A)

814

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

D241

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	24680	31121	31314
Appropriated Amount (FY 1995)	24161		
Adjustments to FY 1995	1715		
Appropriated Amount (FY 1996)		27629	
Adjustment to FY 1996		-275	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-1562
Current President's Budget Submit	25876	27354	29752

Change Summary Explanation:

Funding: FY 1995 - Reprogrammed 1807 from Project DC80, PE 0603760A and -92 rescission.
FY 1997 - Inflation adjustment.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl Cont'd	Total Cost Cont'd
OPA3, Appropriation	78933	73688	82724	47539	78327	80401	96893		
NAO100 Training Devices, Nonsystem	29351	21514	4714	3802	0	17585	18700		
OPA3, Appropriation									
MA6600 CTC Support	0	0	17390	20118	28634	25665	10695		
OPA3, Appropriation									
NAO174 Fire Support Combined Arms Tactical Trainer									

D. Schedule Profile

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Exhibit R-2 (PE 0604715A)
WARSIM Contract Award	1							
WARSIM Downselect Option/Award	2							
AGES II/CTC-IS Site Integration	3							
GUARDFIST I Milestone III	X*							
JRTC-IS IOG								
FSCATT IOC								
M113 OSV Milestone IIIA								
Project D241								

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

**0604715A Non-System Training Devices -
Engineering Development**

**PROJECT
D241**

1661 X-F

4

$$\mathbf{X}^*$$

X

*** Completed Milestones:**

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

D241

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
System Development	25200	25429	29080
Test and Evaluation	626	1000	87
Technical Data	50	236	585
Revised Economic Assessment not available for execution		78	
SBIR/STTR		611	
Total	25876	27354	29752

B. Budget Acquisition History and Planning Information: Not Applicable

Project D241

Page 12 of 18 Pages

Exhibit R-3 (PE 0604715A)

817

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

D396

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D396 Tactical Simulation (TIARA)	3376	2025	2781	3100	2295	3821	3789	Continuing	Continuing

A. Mission Description and Budget Item Justification: D396 - Tactical Simulation (TACSIM): Tactical Simulation (TACSIM) is the intelligence driver for the Corps Battle Simulation (CBS) and the Warfighters' Simulation 2000 (WARSIM 2000). It provides simulated, raw intel data to drive the intel analysis function during training exercises. TACSIM is a TIARA program.

Acquisition Strategy: Competitive development leading to competitive procurement against performance specifications.

FY 1995 Accomplishments:

- 1050 Completed TACSIM 2.1.5.2 development
- 1028 Initiated TACSIM 2.1.5.3 development
- 590 Completed TACSIM/CBS development for CBS
- 218 Continued TACSIM/ALSP interface development
- 490 Initiated development of Warfighters' Simulation (WARSIM) intelligence capability
- Total 3376

FY 1996 Planned Program:

- 868 Complete TACSIM 2.1.5.3 development
- 175 Complete TACSIM/ALSP interface development
- 457 Initiate TACSIM 2.1.6 development/compatibility with CBS
- 475 Continue development of Warfighters' Simulation (WARSIM) intelligence capability
- 5 Revised Economic Assumption not available for execution.
- 45 Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)
- Total 2025

FY 1997 Planned Program:

- 800 Complete TACSIM 2.1.6
- 186 Initiate minor TACSIM enhancements
- 1795 Continue development of Warfighters' Simulation (WARSIM) intelligence capability
- Total 2781

Project D396

Page 13 of 18 Pages

Exhibit R-2 (PE 0604715A)

818

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

D396

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Total

FY 1995

3448

3376

FY 1996

2083

2046

-21

-98

FY 1997

2879

2781

C. Other Program Funding Summary: Not Applicable**D. Schedule Profile**

1 2 3

FY 1995

4 1

FY 1996

2 3

FY 1997

4 1

FY 1998

2 3

FY 1999

4

X

Software Build

Developmental Test and Evaluation

* Completed Milestones

Project D396

Page 14 of 18 Pages

Exhibit R-2 (PE 0604715A)

819

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				D396
5 - Engineering and Manufacturing Development	0604715A Non-System Training Devices - Engineering Development				
A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997		
Software Development	938	518	674		
System Engineering	760	478	587		
Configuration Management	610	360	566		
Technical Data	460	260	385		
Developmental Test and Evaluation	608	359	569		
Revised Economic Assumption not available for execution		5			
SBIR/STTR		45			
Total	3376	2025	2781		
B. Budget Acquisition History and Planning Information: Not Applicable					

Project D396

Page 15 of 18 Pages

Exhibit R-3 (PE 0604715A)

Project D396

Page 15 of 18 Pages

Exhibit R-3 (PE 0604715A)

820

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

D573

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D573 STRICOM and Naval Air Warfare Center Training Systems Division	9541	9717	10332	10761	10679	10450	10623	Continuing	Continuing

A. Mission Description and Budget Item Justification: D573 - STRICOM and NAWCTSD: This project funds STRICOM personnel salaries and support costs and a proportionate Army share of the operating costs of the Naval Air Warfare Center Training Systems Division (NAWCTSD) through an inter-service support agreement which is reviewed annually.

FY 1995 Accomplishments:

- 8562 Funded STRICOM personnel & support
- 979 Funded NAWCTSD support
- Total 9541

FY 1996 Planned Program:

- 8469 Funds STRICOM personnel & support
- 1200 Funds NAWCTSD support
- 33 Revised Economic Assumption not available for execution.
- 15 Small Business Innovative Research/Science and Technology Transfer (SBIR/STTR)
- Total 9717

FY 1997 Planned Program:

- 8932 Funds STRICOM personnel & support
- 1200 Funds NAWCTSD support
- Total 10132

Project D573

Page 16 of 18 Pages

Exhibit R-2 (PE 0604715A)

821

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

D573

B. Project Change Summary

Previous President's Budget (FY 1996)	FY 1995	FY 1996	FY 1997
Appropriated Amount (FY 1995)	9608	9987	10418
Adjustments to FY 1995	9544		
Appropriated Amount (FY 1996)	- 3	2046	
Adjustment to FY 1996		-54	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-86
Current President's Budget Submit	9541	9717	10332

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile: The nature of this project does not lend itself to acquisition milestones.

Project D573

Page 17 of 18 Pages

Exhibit R-2 (PE 0604715A)

822

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604715A Non-System Training Devices -
Engineering Development

D573

A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997
Fund STRICOM Personnel & support	8562	8469	8932
Fund NAWCTSD Support	979	1200	1400
Revised Economic Assumption not available for execution		33	
SBIR/STTR		15	
Total	9541	9717	10332

B. Budget Acquisition History and Planning Information: Not Applicable

Project D573

Page 18 of 18 Pages

Exhibit R-3 (PE 0604715A)

823

UNCLASSIFIED

UNCLASSIFIED

PDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE		March 1996					
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT					
5 - Engineering and Manufacturing Development		0604716A Terrain Information - Engineering Development (TIARA)		D579					
COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D579 Field Army Map Sys Eng Dev	9999	8728	7369	3108	2877	2293	1800	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: This program element funds development of the Digital Topographic Support System/Quick Response Multicolor Printer (DTSS/QRMP). The current terrain analysis, topographic and reproduction support provided by Army Engineer Terrain Teams are slow, labor intensive processes that do not meet the needs of the Force XXI battlefield in which the commander must have the ability to rapidly obtain terrain information and topographic products. The Combat Terrain Information Systems (CTIS) Modernization Plan, approved in April 1994 by the Combat Developer, stated the requirement to proceed immediately with the downsized configuration and further identified that QRMP functionality would be incorporated into the DTSS for a single integrated terrain analysis and reproduction capability. It has been determined that the downsized capability is now more appropriate to support contingency operations, operations other than war (OOTW), and split based operations. The DTSS/QRMP will be deployed at Division, Corps, and EAC in support of these missions. The DTSS/QRMP will automate the updating and processing of terrain information into terrain analysis products, provide rapid reproduction of low volume, up-to-date, large format, full color imagery maps, situation overlays, special graphics (e.g. captured enemy maps) and other topographic and terrain products. Using the most current technology available, the functional capabilities of DTSS and QRMP will be developed into a single interoperable architecture. Part of imagery exploitation includes the development of a Multi-Spectral Imagery Processor (MSIP), which provides an image map making capability. Due to current world events and the possibility of contingency missions in areas where standard map products are not available, image map production has become an urgent need. The CTIS project office was tasked with the mission to issue the DTSS-MSIP as an interim measure to topographic units. The project in this Program Element supports research efforts in the Engineering and Manufacturing Development (E&MD) phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5.</p> <p>B. Acquisition Strategy: The Acquisition Strategy being pursued for the DTSS/QRMP EMD phase is to utilize Army standard equipment and the Common Hardware/Software (CHS) computer workstations in conjunction with non-development item (NDI) components to develop an integrated baseline hardware configuration. The plan is to utilize the Combat Terrain Information Systems (CTIS) System Engineering and Integration (SE&I) contractor to execute the EMD phase, to perform system integration, and provide units for formal test and evaluation. The procurement of the Multi-Spectral Image Processor (MSIP) was approved by the Army. The acquisition of the MSIP relied upon existing contracts and commercial-off-the-shelf (COTS) to the fullest extent possible. Existing DTSS units will be upgraded to a 5-ton ISO 20 foot shelter configuration. The upgraded 5-ton systems will provide an integrated capability while preserving the Army's investment in the DTSS.</p> <p>Program Management responsibility and milestone decision authority have been assigned to the Program Executive Officer for Command, Control, and Communications Systems (PEO C3S). Project management is provided by the Project Director (PD) for Combat Terrain Information Systems. The contracting strategy for the DTSS/QRMP program is to execute the EMD phase through the current SE&I contractor, Lockheed Martin Corporation. A Competitive Cost Plus Fixed Fee (CPFF) contract was awarded for the CTIS SE&I contract. A competitively awarded, Firm Fixed Price (FFP) contract is anticipated for the Full Rate Production of the DTSS/QRMP. Upgrades to the existing DTSS units will also be accomplished through the CTIS SE&I contract. The computer workstations for CTIS programs are being procured through the PM for Common Hardware and Software.</p>									

Project D579

Page 1 of 5 Pages

824

Exhibit R-2 (PE 0604716A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
5 - Engineering and Manufacturing Development	0604716A Terrain Information - Engineering Development (TIARA)	D579	
FY 1995 Accomplishments:			
• 300 Initiated Development of DTSS Upgrade			
• 300 Completed Development of DTSS-MSIP			
• 1000 Completed DTSS Block I P3I and Conducted Test and Evaluation (Software)			
• 7899 Continued Development of Downsized DTSS/QRMP			
• 500 Continued P3I Program (Interoperability)			
Total			9999
FY 1996 Planned Program:			
• 2000 Complete Development of DTSS Upgrade			
• 5674 Continue Development of Downsized DTSS /QRMP			
• 600 Continue P3I Program (Interoperability)			
• 235 Initiate Test and Evaluation of EMD Prototypes			
• 24 Revised Economic Assumption - Not Available for Execution			
• 195 SBIR/STTR			
Total			8728
FY 1997 Planned Program:			
• 4800 Complete Development of Downsized DTSS/QRMP			
• 569 Conduct Test and Evaluation of EMD Prototypes			
• 2000 Initiate P3I Development for DTSS/QRMP			
Total			7369
B. Project Change Summary			
Previous President's Budget (FY 1996)		FY 1995	FY 1996
Appropriated Amount (FY 1995) -		10213	9011
Adjustments to FY 1995		9999	
Appropriated Amount (FY 1996)			8817
Adjustments to FY 1996			-89
Adjustments to Budget Year (FY97) since FY 96 President's Budget			-261
Current President's Budget Submit		9999	8728
			7369
Project D579		Exhibit R-2 (PE 0604716A)	

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604716A Terrain Information - Engineering Development (TIARA)

D579

Change Summary Explanation:

Funding: FY 96 - (-39) the portion of this program that has been proposed for rescission.
FY97 - (-261) reduction due to revised inflation rates

C. Other Program Funding Summary

A - KA2550 - DTSS

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
	7779	6736	6425	7800	4847	1871	2323	CONT	CONT

D. Schedule Profile

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
	1	2	3	4	1	2	3	4	

Award Downsize DTSS/QRMP EMD

Task Order

Conduct MSIP Beta Testing

Initiate Delivery of MSIP to Terrain

Teams

Develop DTSS (Heavy) Upgrade

Delivery of DTSS/QRMP Build 1 S/W

Delivery of Enhanced DTSS-MSIPs

Incorporate DTSS (Heavy) Upgrades

Conduct Downsize DTSS/QRMP

Developmental Test and Evaluation/

Operational Test and Evaluation

(DT&E/OT&E)

Initiate Fielding of Upgrade and DTSS

Downsize DTSS/QRMP Milestone III

*Milestone Complete

X
X

Project D579

Page 3 of 5 Pages

Exhibit R-2 (PE 0604716A)

826

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604716A Terrain Information - Engineering
Development (TIARA)

D579

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Primary System Development	3886	3358	1750
Software Development	2800	2358	2000
Government Furnished Equipment	300	300	300
Government Engineering Support (includes Test Support)	740	632	1439
Contractor Engineering Support	900	900	900
Licenses and Maintenance	13	11	30
Project Management and Administration	1360	950	950
Revised Economic Assumption - Not Available for Execution		24	
SBIR/STTR		195	
Total	9999	8728	7369

B. Budget Acquisition History and Planning InformationPerforming Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Loral Defense	C/CPFF/FFP	7/87	35657	35657	35657	0	0	0	0	35657
Akron, OH	Prod Option									
Lockheed Martin	C/CPFF	1/93	22000	22000	4200	6686	5920	3750	CONT	CONT
Ft Wash, PA										
In-House	MIPR					1373	976	980	CONT	CONT
Support/TEC										
Support and Management Organizations										
CSC	C/FFP					400	400			
Fairfax, VA										

Project D579

Page 4 of 5 Pages

Exhibit R-3 (PE 0604716A)

827

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604716A Terrain Information - Engineering Development (TIARA)

D579

Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete CONT	Total Program CONT
Activity	Vehicle	Date	EAC	EAC	FY 1995	FY 1995	FY 1996	FY 1997	CONT	CONT
SYTEX	FFP thru PM							400		
McLean, VA	Intel Fusion				500		500	500	CONT	CONT
MITRE Corp	FFRDC thru									
McLean, VA	CECOM				690		397	870	CONT	CONT
OGAs	IPR									
Test and Evaluation Organizations					50		235	569	CONT	CONT
TECOM	MIR									

Government Furnished Property

Contract	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete CONT	Total Program CONT
Item Description	Vehicle	Date	Date	FY 1995	FY 1995	FY 1996	FY 1997	CONT	CONT
Product Development Property									
SUN's (ECS)	REQS	20 Apr 95	7 Jul 95 to TEC	300				0	300
TBD						300	300	CONT	CONT

Support and Management Property: None

Test and Evaluation Property: None

Subtotal Product Development	39857	8359	7196	5030	CONT	CONT
Subtotal Support and Management		1590	1297	1770	CONT	CONT
Subtotal Test and Evaluation		50	235	569	CONT	CONT
Total Project	39857	9999	8728	7369	CONT	CONT

* Prior year funding only covers the Prime Contractors.

Project D579

Page 5 of 5 Pages

Exhibit R-3 (PE 0604716A)

828

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604739A Integrated Broadcast Service - Modules

D702

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D702 Common Broadcast Integrated Service-Modules	0	0	4867	4845	4819	4786	4754	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Integrated Broadcast Service (IBS) is the worldwide, DOD Standard Network for transmitting tactical and strategic intelligence and targeting data. The Common Integrated Broadcast Service - Modules (CIBS-M) Multiservice and SOCOM Joint Program was, created to consolidate and replace all requirements associated with multiple existing and development systems. This is a new start required to implement the IBS plan and consolidate/eliminate duplication of effort previously spread across multiple PEs/SSNs DOD wide. This program funds design, development, test and evaluation of initial CIBS hardware and software modules, as well as implementing performance expanding modifications to the family of CIBS-M Modules. This program element supports development efforts in the Engineering and Manufacturing development phases of the Acquisition Strategy and are therefore correctly placed in Budget Activity 5.

Acquisition Strategy: The CIBS-M family of modules is the consolidation of multiple legacy weapon systems across all DOD component agencies. The Joint Program will competitively procure the HW/SW modules and perform necessary modifications as the Broadcast Networks continue to evolve and modify their transmissions.

FY 1995 Accomplishments: Not funded in FY 95

FY 1996 Planned Program: Not funded in FY 96

FY 1997 Planned Program:

- 3148 Begin CIBS-M Design
- 908 Complete CIBS-M Prototype Fabrication
- 811 Conduct CIBS-M Test
- Total 4867

Project D702

Page 1 of 3 Pages

Exhibit R-2 (PE 0604739A)

829

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER: TLE

0604739A Integrated Broadcast Service - Modules

D702

	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
--	----------------	----------------	----------------

0

4867

4867

FY 1995

12126

945

4

1

Page 2 of 3 Pages

Exhibit R-2 (PE 0604739A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

PROJECT

D702

PE NUMBER AND TITLE

0604739A Integrated Broadcast Service - Modules

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

A. Project Cost Breakdown

Hardware Development

Software Development

Test

Project Management

Total

FY 1995

FY 1996

FY 1997

2828

1023

811

205

4867

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Government

Performing

Activity

Method/Type

or Funding

Vehicle

Award or

Obligation

Date

Performing

Activity

EAC

Total

Prior to

FY 1995

Project

Office

EAC

FY 1995

FY 1996

FY 1997

Budget to

Complete

Total

Program

Cont

Cont

Product Development Organizations

TBS

C/CPFF

OCT 96

Support and Management Organizations

CECOM

Test and Evaluation Organizations: None

Government Furnished Property: N/A

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

Project D702

Page 3 of 3 Pages

Exhibit R-3 (PE 0604739A)

831

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									
5 - Engineering and Manufacturing Development		0604740A Tactical Surveillance System - Engineering Development									
	COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		2049	2918	0	0	0	0	0	—	147289	
D662 Tactical Surveillance System - Eng Dev		2049	0	0	0	0	0	0	—	147289	
D661 Suite of Survivability Enhancement Systems		0	2918	0	0	0	0	0	—	2918	

Mission Description and Budget Justification: In FY 1995 and prior, this PE supported engineering development work directed at meeting the deep intelligence and targeting needs of tactical command and control. It was funded in Field Manual 100-5 and under Airland Battle tactics, to fight out-numbered and win. Specific tactical imagery exploitation studies and developments were conducted for the Army's Tactical Exploitation of National Capabilities (TENCAP). The projects in this PE supports research efforts in the engineering and manufacturing development phases of the acquisition strategy and is therefore correctly placed in Budget Activity 5

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604740A Tactical Surveillance System -
Engineering Development

D662

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D662 Tactical Surveillance System - Eng Dev	2049	0	0	0	0	0	0	0	147289

A. Mission Description and Budget Item Justification: In FY 1994 and prior, this project supported engineering development work directed at meeting the deep intelligence and targeting needs of tactical commanders, as stated in Field Manual 100-5 and under Airland Battle tactics, to fight out-numbered and win. Specific tactical imagery exploitation studies and developing comments are under the Army's Tactical Exploitation of National Capabilities (TENCAP). This project includes efforts to maintain sensor interfaces, modernize the existing Modernized Imagery Exploitation Systems (MIES), perform engineering development of the hardware of the Enhanced Tactical Radar Correlator (ETRAC) and DOD's Common Synthetic Aperture Radar Processor (CSARP), and provide program management support to the Joint Services Imagery Processing System (JSIPS) Program Office (JPO). The MIES receives and processes imagery from National and tactical sources to generate intelligence reports and exploited imagery products to the field commander. The CSARP processes the signals from Synthetic Aperture Radars (SAR). The ETRAC contains the DoD CSARP and is a C-130 drive on/off system that receives inputs from various platforms, converts the SAR to a visual image, and is capable of stand alone contingency operations. These systems will provide direct operational access to National and theater imagery in near-real-time to provide critical, deep target intelligence support to tactical commanders and to support contingency missions and low intensity conflicts. TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing planned initiatives determined to have potential application to multiple TENCAP systems (including MIES and ETRAC that are funded under the DARP (PE 0305154D)). Graphic Situation Display (GSD), which is part of the Common Baseline effort, is a jointly funded program to develop a means to computer generate, transmit, and display graphical representations to the battle space thereby saving communication bandwidth, manpower and time. The beta software portion of GSD development effort was funded in FY 1993 with Military Exploitation of Reconnaissance and Intelligence Technology (MERIT) funds. This project also provides technical and engineering support efforts to MIES and ETRAC from the Topographic Engineering Center (TEC), Federally Funded Research and Development Centers (FFRDC), and Contractor Systems Engineering and Technology Assistance (SETA) activity. In FY 1995, all funds directly related to the development of MIES, ETRAC and JPO support are moved to PE 0305154D, DARP. In a parallel action, the support efforts remaining in this project were consolidated under Project D909 beginning in FY 1996. Further details may be found in the Tactical Intelligence and Related Activities (TIARA) Congressional Justification Book, Volume II, and the TENCAP Master Plan.

Acquisition Strategy: As pioneers in rapid acquisition, ASPO's success in delivering systems as those described above to warfighters can be directly attributed to an environment emphasizing stable funding, low density acquisition, minimal use of MILSPECS, and managed competition. By tailoring existing technology, leveraging the best commercial practices, and using commercial and government-off the shelf software, ASPO minimizes risk while maximizing efficiency. Strong user involvement and a robust operations and maintenance program and a vigorous P31 effort ensure programmatic success. Finally, dedicated cradle to grave Integrated Logistics Support (ILS) for TENCAP systems is accomplished through a coordinated effort by Government and contractor personnel and facilities.

Project D662

Page 2 of 8 Pages

833

Exhibit R-2 (PE 0604740A)

UNCLASSIFIED

ROT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604740A Tactical Surveillance System - Engineering Development

**PROJECT
D662**

FY 1995 Accomplishments:

- 759 Initiated installation of GSD into all Forward Area Support Terminal (FAST) systems.
- 551 Continue 1 SETA to TENCAP program from FFRDC (Aerospace).
- 739 Continued contractor SETA support to TENCAP program.

Total	2049
-------	------

FY 1996 Planned Program (TENCAP) - Engineering

Efforts in this project transferred/consolidated under PE 0604766A (Project D909), Tactical Exploitation of National Space Capabilities (Project D909, Tactical Electronic Surveillance System, Engineering Development.

FY 1997 Planned Program: All efforts in this project transferred/consolidated under PE 0604766A.

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1995

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current Budget Submit

C. Other Program Funding Summary

RDTE, A Budget Activity 4

PE 0603766A Project D907

TENCAP - Adv Dev

PE 0603730A Project D560

Tact Surv Sys - Adv Dev

RDTE, A Budget Activity 5

PE 0604766A Project D909

TENCAP - Eng Dev

RDTE, D Buğdet Activity 7.

Project D662

Page 3 of 8 Pages

Exhibit R-2 (PE 0604740A)

834

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT							
5 - Engineering and Manufacturing Development	0604740A Tactical Surveillance System - Engineering Development	D662							
		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Total Compl Cost Cont
C. Other Program Funding Summary									
PE 0305154D Project D53L		39313	42737	47780	35264	13750	13824	13723	
DARP									
Other Procurement, Army OPA-2		4636	4473	1758	1705	1758	4678	13936	N/A
BZ 7315 TENCAP		2411	0	0	0	0	0	0	Cont
BA 0329 DARP									
Procurement, Defense Wide		51534	80822	98486	94583	76123	72124	67173	N/A
0305154D; DARP									Cont
D. Schedule Profile									
Complete Development and Field 3rd MIES		1	2	3	4	1	2	3	4
			X						

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	March 1996
BUDGET ACTIVITY		PROJECT	
5 - Engineering and Manufacturing Development		D662	
PE NUMBER AND TITLE		0604740A Tactical Surveillance System - Engineering Development	
A. Project Cost Breakdown			
Common Baseline (*1)	FY 1995	FY 1996	FY 1997
FFRDC (*1, *2)	759	0	0
System Engineering (Contractor) (*1, *2)	551	0	0
Total	739	0	0
	2049	0	0
<p>(*1) In FY 96 and beyond, this PE/Project is consolidated under PE 0604766A (TENCAP-Eng Dev), Project D909 (Tactical Electronic Surveillance System - Eng Dev).</p> <p>(*2) In FY 95, these funds support the system being developed under PE 0305154D (DARP), P531.</p>			
B. Budget Acquisition History and Planning Information: Not Applicable.			

Project D662

Page 5 of 8 Pages

Exhibit R-3 (PE 0604740A)

836

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604740A Tactical Surveillance System - Engineering Development								D661	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D661 Suite of Survivability Enhancement Systems		0	2918	0	0	0	0	0	0	2918	
<p>A. Mission Description and Budget Item Justification: The SSES program is a Horizontal Technology Integration (HTI) initiative to develop, produce and apply a suite of electronic sensors and countermeasures to the Army's and Marine Corp's ground vehicle systems. It focuses on the near-to-mid term opportunities to improve the survivability of combat, command and control and selected tactical vehicles. SSES takes advantage of hit avoidance technologies already developed and produced for aviation platforms. Initially, SSES will consist of Laser Warning Receiver (LWR), display, and software that is linked to the vehicle on board smoke systems. The system alerts the vehicle crew to a variety of laser threats and the direction of those threats. Studies and recent field exercises with non-optimized LWRs indicates that the LWR will significantly improve crew and vehicle survivability and situational awareness.</p> <p>Acquisition Strategy: This program is an Acquisition Category III (ACAT III) Program with the Program Executive Officer (PEO) servicing as the milestone decision authority. SSES is a two phase program with the first phase consisting of procuring and modifying aviation LWRs to validate performance requirements, and the second phase consisting of the integration of a LWR into databussed and hardwired ground vehicle systems. In FY 96 the focus will be on modification of an existing PM-AEC contract to purchase LWRs for modification and testing.</p> <p>FY 1995 Accomplishments: Project not funded.</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 2832 LWR modification and testing • 66 SBIR/STTR • 20 Revised economic assumption not available for execution Total 2918 <p>FY 1997 Planned Program: Project not funded.</p>											

Project D661

Page 6 of 8 Pages

Exhibit R-2 (PE 0604740A)

837

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
5 - Engineering and Manufacturing Development	0604740A Tactical Surveillance System - Engineering Development	D661	
B. Project Change Summary			
Previous President's Budget (FY 1996)			
Appropriated Amount (FY 1995)			
Adjustments to FY 1995			
Appropriated Amount (FY 1996)			
Adjustments to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current Budget Submit			
		FY 1995	FY 1996
			0
			2948
			-30
			2918
Change Summary Explanation:			
Funding: FY 1996: (-30) Revised economic assumptions revised inflation rate.			
C. Other Program Funding Summary: Not Applicable.			
D. Schedule Profile			
		FY 1995	FY 1996
		1 2 3 4	1 2 3 4
Procure AN/AVR/LAs & modify			X
Initiate A-kit development			X
Conduct system integration lab tests			X

Project D661

Page 7 of 8 Pages

Exhibit R-2 (PE 0604740A)

838

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604740A Tactical Surveillance System -
Engineering Development

D661

A. Project Cost Breakdown

Primary Hardware Development/Contractor
Developmental Test & Evaluation
Program Management
SBIR/STTR
Revised economic assumption not available for execution
Primary A-kit development/contract
Total

FY 1995

FY 1996

FY 1997

1440

252

120

66

20

1020

2918

B. Budget Acquisition History and Planning Information: Not Applicable

Government Furnished Property: Not Applicable

Total
Prior to
FY 1995

FY 1995

FY 1996

FY 1997

Subtotal Product Development
Subtotal Support and Management
Subtotal Test and Evaluation
SBIR/STTR
Revised economic assumption not available for execution
Total Project

2460

120

252

66

20

2918

Budget to
Complete
Total
Program

Project D661

Page 8 of 8 Pages

Exhibit R-3 (PE 0604740A)

839

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604741A Air Defense Command, Control, Intelligence - Engineering Development

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	29071	20249	20516	14944	2042	6829	7744	Continuing	Continuing
D126 FAAD Command and Control Engineering Development	28940	19281	20516	14944	2042	6829	7744	Continuing	Continuing
D146 Air Defense Tactical Operations Center	0	968	0	0	0	0	0	Continuing	Continuing
D2JT FAAD C2 Operational Test	131	0	0	0	0	0	0	0	131

Mission Description and Budget Item Justification: The Forward Area Air Defense Command, Control and Intelligence (FAAD C2I) System provides critical forward area air defense automated information to support the command and control decision process at various levels of command. The mission is to collect, digitally process and disseminate target information, air threat warning, and command and control information to all FAAD weapons (AVENGER, Bradley STINGER Fighting Vehicle (BSFV), Manportable Air Defense System (MANPADS), and combined arms). Unique FAAD C2I software will provide the mission capability by integrating FAAD C2 engagement operations software using Common Hardware/Software (CHS), Standard Integrated Command Post System (SICPS), Enhanced Position Location Reporting System (EPLRS), Joint Tactical Information Distribution System (JTIDS), Single Channel Ground and Air Radio System (SINCGARS), Light and Special Division Interim Sensor (LSDIS), Global Positioning System (GPS), Airborne Warning and Control System (AWACS), Ground Based Sensor (GBS), and the Army Battle Command System (ABCS) architecture. The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604741A Air Defense Command, Control,
Intelligence - Engineering Development

D126

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D126 FAAD Command and Control Engineering Development	28940	19281	20516	14944	2042	6829	7744	Continuing	Continuing

A. Mission Description and Justification: Project D126 - FAAD Command and Control Eng Dev: The Forward Air Defense Command and Control (FAAD C2) System is an automated system deployed with FAAD weapons to provide accurate and timely command, control and targeting information for the weapon systems. The system utilizes non-developmental item sensors, computers, displays and interface hardware integrated with data communication equipment. It automates mission related functions and uses the Single Channel Ground and Airborne Radio Systems (SINGARS) for voice and the Army Data Distribution System (ADDS) for data.

Acquisition Strategy: The acquisition strategy relies heavily on Non-developmental items (NDI) and evolutionary software development to rapidly overcome our current air defense command, control and intelligence deficiencies and to keep pace with the advancing technologies. The concept of evolutionary software development is being followed and will be accomplished in Blocks - I, II, III and IV. Blocks I and II have been completed. Block III is currently being developed.

FY 1995 Accomplishments:

- 6808 Conducted Block II IOTE
- 17433 Continued Block III Software Development
- 600 Prepared for Milestone III Decision Review -- Heavy Division
- 600 Prepared for First Unit Equipped -- Heavy Division
- 1499 Force Projection Tactical Operations Center (FPTOC) efforts
- 2000 Congressionally directed Sensor Study
- Total 28940

FY 1996 Planned Program:

- 18000 Continue Block III Software Development
- 400 Prepare for Block III Users Test
- 466 Prepare for Technology Insertion
- 57 Revised Economic Assumptions - Not available for execution
- 358 SBIR/STTR
- Total 19281

Project D126.

Page 2 of 12 Pages

Exhibit R-2 (PE 0604741A)

841

UNCLASSIFIED

RDI&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

**0604741A Air Defense Command, Control,
Intelligence - Engineering Development**

March 1996

•	1877	Conduct Block III Users Test (UT)
•	18339	Continue Block III Software Development
•	300	Prepare for Block III Development Test (DT)
Total	20516	

Previous President's Budget (FY 96)

<u>FY 1995</u>	<u>FY 1996</u>	<u>F 1997</u>
28002	21035	21143

19474

-193

-627

FY 96 President's Budget

20516

Funding: FY 95 (+1449) for FPTOC efforts

Funding: FY 95 (+1449) for PPTOC efforts
FY 96 (-1200) Congressional cut and (-193) the portion of the program that has been proposed for rescission
FY97 (-527) reduction due to revised inflation rates

<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Compl</u>	<u>Cost</u>
5276								22561
63680	61882	51226	44715	42154	60530	64476	CONT	CONT
17756	39080	36761	16070	11978	0	0	0	128067
1447	1473	1260	1588	886	0	0	0	8475
		2552	3614	5370	5572			18214

OPA 2 WK 5053 - FAAD GBS

OPA 2 AD5050 - FAADC2

Spare (BA9702/MA9702/BS9702)

Spares (BS9732)

Page 3 of 12 Pages

Exhibit R-2 (PE 0604741A)

842

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604741A Air Defense Command, Control,
Intelligence - Engineering Development

D126

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Major Contracts	18999	16000	15990
Support Contract	1000	500	1000
PMO/In-house/Other	2494	2581	2516
GFE/Testing	6447	200	1010
Total	28940	19281	20516

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
TRW	C/CPIF	Sep 86	178000	178000	176461					176461
TRW	SS/CPIF	Aug 92	50106	50106	24806	7100				31906
TRW	SS/CPIF	Sep 94	53194	53194	300	7400	14000	14000	CONT	CONT
TRW	SS/T&M	Sep 93	4900	4900	0	1000	2000	1990	CONT	CONT
Matrix (RDEC)	MIPR				1132	1031	1227	1173	CONT	CONT
FPTOC	Misc Contrs				1499	1499				1499
TBD	TBD				2000	2000				2000
(Sensor Study)										
Support and Management Organizations										
SETA, CAS	SS/CPFF	Feb 91	9400	9400	9879	1000				10879
In-House/ Other					1451	1463	1854	2343	CONT	CONT
Test and Evaluation Organizations										
ADATD, Ft Bliss					2440	6247				CONT
OPTEC					2000			810	CONT	2000

Project D126

Page 5 of 12 Pages

Exhibit R-3 (PE 0604741A)

844

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604741A Air Defense Command, Control,
Intelligence - Engineering Development

D126

Government Furnished Property

Contract

Item Description	Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date
CHS	MIPR	1988	
JTIDS	MIPR	1988	

Product Development Property

Support and Management Property: None
Test and Evaluation Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

Total
Prior to
FY 1995

FY 1995

FY 1996

FY 1997

Budget to
CompleteTotal
Program200
6000

200

200

200

CONT
0CONT
6000

208899

20230

17427

17363

CONT

CONT

11330

2463

1854

2343

CONT

CONT

4440

6247

810

20516

CONT

CONT

Project D126

Page 6 of 12 Pages

Exhibit R-3 (PE 0604741A)

845

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604741A Air Defense Command, Control,
Intelligence - Engineering Development

D146

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D146 Air Defense Tactical Operations Center	0	968	0	0	0	0	0	Continuing	Continuing

A. Mission Description and Justification: Project D146 - Air Defense Tactical Operations Center: Air Defense Artillery (ADA) requires a standardized, integrated, automated command post (CP) and fire direction center (FDC) capability that will fully interoperate with all US Army and Joint C3I and Air Defense systems, and selected systems of allied nations. These capabilities will be incorporated in an Air Defense Tactical Operations Center (ADTOC). The ADTOC must incorporate air defense and theater missile defense force operations and engagement operations functions into a single command, control, communications and intelligence system. Project D146 finances the direct costs of developing an ADTOC that will be used to provide a single system command, control, communications, and intelligence system that will support the requirements of a 1y air defense weapon system at any echelon of Corps and below. This is not a new start. These efforts were previously funded under Project D126.

Acquisition Strategy: The acquisition strategy relies heavily on NDI and existing modules of Army/Joint/DoD software which will be integrated to provide a modular, reconfigurable, standard digital ADTOC for all air defense units, battery to brigade. Brigade ADTOCs will be automated first with expansion to all weapon systems.

FY 1996 Planned Program:

- 944 Development and integration studies
- 22 SBIR/STTR
- 2 Revised Economic Assumptions - Not available for execution
- Total 968

B. Project Change Summary

Previous President's Budget (FY 96)
Appropriated Amount (FY 95)
Adjustments to FY 95
Appropriated Amount (FY 96)
Adjustments to FY 96
Adjustments to Budget Year (FY97) since
FY 96 President's Budget
Current President's Budget Submit

FY 1995 FY 1996 FY 1997

995

978

-10

968

Project D146

Page 7 of 12 Pages

Exhibit R-2 (PE 0604741A)

846

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

**0604741A Air Defense Command, Control,
Intelligence - Engineering Development**

D146

Change Summary Explanation:

Funding: FY 96 (-10) the portion of this program that has been proposed for rescission.

C. Other Program Funding Summary Not Applicable

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
ADTOC Development												

ADTOC Development

* Denotes Completed Milestone

Project D146

Page 8 of 12 Pages

Exhibit R-2 (PE 0604741A)

847

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development		0604741A Air Defense Command, Control, Intelligence - Engineering Development				
A. Project Cost Breakdown						
Development Efforts						
Total						
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or						
Government						
Performing						
Activity						
Product Development Organizations						
Misc Contrs						
Support and Management Organizations: None						
Test and Evaluation Organizations: None						
Government Furnished Property: None						
Subtotal Product Development						
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project						

Project D146

Page 9 of 12 Pages

Exhibit R-3 (PE 0604741A)

848

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604741A Air Defense Command, Control,
Intelligence - Engineering Development

D2JT

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D2JT FAAD C2 Operational Test	131	0	0	0	0	0	0	0	131

A. Mission Description and Justification: Project D2JT - Forward Area Air Defense Command and Control Operational Test: This project finances the direct costs of planning and conducting operational testing and evaluation of the Forward Area Air Defense Command, Control, and Intelligence (FAAD C2I) by the Operational Test and Evaluation Command (OPTEC). The FAAD C2I is an Acquisition Category (ACAT) IC system with a dedicated Initial Operational Test and Evaluation (IOTE) in FY 1995 in support of Milestone III full production decisions. Operational testing is conducted under conditions, as close as possible, to those encountered in combat with typical user troops trained to employ the system. OPTEC provides Army leadership with an independent test and evaluation of effectiveness and suitability of the system. Future fiscal years will be reprogrammed when system information becomes available.

Acquisition Strategy: Not applicable

FY 1995 Accomplishments:

• 131 Conducted FAAD C2I IOTE
Total 131

FY 1996 Planned Program: No planned program.

FY 1997 Planned Program: No planned program.

B. Project Change Summary

Previous President's Budget (FY 96)

Appropriated Amount (FY 95)

Adjustments to FY 95

Appropriated Amount (FY 96)

Adjustments to FY 96

Adjustments to Budget Year (FY97) since

FY 96 President's Budget

Current President's Budget Submit

FY 1997

FY 1996

FY 1995

134

131

131

Project D2JT

Page 10 of 12 Pages

Exhibit R-2 (PE 0604741A)

849

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604741A Air Defense Command, Control, Intelligence - Engineering Development								D2JT	
C. Other Program Funding Summary											
RDTE, A 0604820 Radar Development - FAADC31 Oper Test - D2JT		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost	6109
		6109									
D. Schedule Profile											
FAADC2 IOTE		FY 1995									
		1	4	1	2	3	4	1	2	3	4
		X*									
*Milestone Complete											

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604741A Air Defense Command, Control,
Intelligence - Engineering Development

D2JT

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Testing	131		
Total	131		

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Government

Performing

Activity

Method/Type

or Funding

Vehicle

Award or

Obligation

Date

Performing

Activity

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

Project

Office

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

EAC

Total

Prior to

FY 1995

FY 1995

FY 1996

FY 1997

Total

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

Program

131

131

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

131

131

131

131

Project D2JT

Page 12 of 12 Pages

Exhibit R-3 (PE 0604741A)

851

UNCLASSIFIED

UNCLASSIFIED

OT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									
5 - Engineering and Manufacturing Development		0604746A Automatic Test Equipment Development									
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		16785	15015	2793	2770	2733	4802	4773	0	Continuing	Continuing
DL10 Electro-Optic (EO) Test Equipment		2924	0	0	0	0	0	0	0	0	24190
DL59 Diagnostic/Expert System Development		8000	5288	2793	2770	2733	4802	4773	0	Continuing	Continuing
D537 Integrated Family of Test Equipment		5861	9727	0	0	0	0	0	0	0	67101

Mission Description and Budget Item Justification: This program element provides for development of modular, reconfigurable automatic test equipment (ATE) to satisfy test and fault isolation requirements across equipment commodities and to meet operational readiness needs of sophisticated systems and state-of-the-art technologies. An urgent requirement exists at all levels of maintenance for ATE to support complex communications and electronics-intensive commodities such as missiles, aircraft, and combat vehicles. The Integrated Family of Test Equipment, with improvements as required to keep pace with technologies employed in the supported weapon systems, can meet these mission requirements into the next century. This program element further provides for identification and evaluation of the capabilities of nondevelopmental items to satisfy requirements for manual and semi-automatic general purpose test, measurement, and diagnostic equipment at the division level. Expert systems and artificial intelligence applications are also being developed under this program element to provide paperless maintenance manuals/procedures and battlefield electronic displays which will reduce the Army's investment in test program sets and in maintenance publications and procedures. These projects are appropriately assigned to Budget Activity 5 since they provide for engineering and manufacturing development of new ATE systems to meet the test and diagnostic requirements of the Army's weapon systems and for incorporation of state-of-the-art technologies into the Army's ATE systems.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604746A Automatic Test Equipment Development
DL10

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DL10 Electro-Optic (EO) Test Equipment	2924	0	0	0	0	0	0	0	24190

A. Mission Description and Justification: Project DL10 - Electro-Optic Test Equipment: This project provides for development of state-of-the-art, technologically superior general purpose test equipment capable of performing fault isolation and failure diagnosis on electro-optical components and assemblies of the Army's major weapon systems. Currently, electro-optic (EO) testing requirements in the forward areas are met with a multitude of non-standard, semi-automatic, or manual testers which vary greatly in capability, reliability, weight, and cost, and require very highly skilled operators and maintainers. Serious deficiencies exist in EO testing capabilities in the field. There is no automatic EO testing capability at organizational and direct support levels for certain weapon systems and critical parameters of other systems cannot be measured at the organizational levels because EO test equipment is not available. The test equipment being developed under this project will fill these voids in the field and replace outdated, deficient, and difficult to maintain equipment such as the Land Combat Support System (LCSS). This new equipment will alleviate the existing EO test and diagnostic shortfalls and is in concert with Army and Department of Defense (DOD) policies on standard automatic test equipment. This program has been restructured and continuing effort is funded under Project DL59 beginning in FY 1996.

Acquisition Strategy: When the necessary expertise and capacity are available within the DOD, services are ordered from the government source. Otherwise, commercial contracts are used. Equipment required for development projects is obtained by contract from the commercial supplier. Conversion of the LCSS test program sets (TPS) and development of the Contact Test Set-Electro-Optic Augmentation (CTS-EOA) were obtained through competitive contracts. Other services on this project were obtained from DOD sources.

FY 1995 Accomplishments:

- 851 Evaluated/validated EO test requirements and solutions
- 1784 Converted LCSS EO TPSs for use on Base Shop Test Facility
- 289 Closed out CTS-EOA development
- Total 2924

FY 1996 Planned Program: See Project DL59

FY 1997 Planned Program: See Project DL59

Project DL10

Page 2 of 12 Pages

Exhibit R-2 (PE 0604746A)

853

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604746A Automatic Test Equipment Development

DL10

B. Project Change Summary

Previous President's Budget

Appropriated Value (FY 95)

Adjustments to FY 95

Adjustments to Budget Year since FY 96 President's Budget

Current Budget Estimate Submission

FY 1995

4740

4663

-1739

2924

FY 1997

0

C. Other Program Funding Summary

OPA2 Appropriation

Integrated Family of Test Equipment (KA4100)

FY 1995

0

FY 1996

5832

FY 1997

0

FY 1998

0

FY 1999

14400

FY 2000

5834

FY 2001

1869

To
Compl

Cont'd

Total
Cost

Cont'd

D. Schedule Profile

FY 1995

2 3

1

FY 1996

2 3

1

FY 1997

2 3

1

FY 1997

2 3

4

Complete COEA

Complete CTS-EOA Developmental

Testing

Preproduction Hardware and IETM

Delivery

X*

X*

X*

Project DL10

Page 3 of 12 Pages

Exhibit R-2 (PE 0604746A)

854

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604746A Automatic Test Equipment Development

DL59

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DL59 Diagnostic/Expert System Development	8000	5288	2793	2770	2733	4802	4773	0	Continuing

A. Mission Description and Justification: Project DL59 - Diagnostic/Expert System Development: This project supports full-scale development of expert/diagnostic systems and general purpose test equipment and evaluation/testing of nondevelopmental items (NDI) for support of Army weapon systems. These systems and equipment are required to overcome existing deficiencies and voids in organic test and diagnostic capabilities. The project provides for development of diagnostic technologies and state-of-the-art general purpose test equipment to support the Army's weapon systems; improvement of general purpose test equipment to meet new testing and technological requirements; market surveys of commercially available general purpose test equipment to determine applicability to Army requirements; evaluations and validations of diagnostic software on targeted hardware; and development/evaluation of test programs sets (TPS) for use with standard automatic test equipment. Applications of state-of-the-art technologies in expert systems and artificial intelligence, paperless maintenance and troubleshooting manuals, electro-optics displays for battlefield use, and soldier-friendly equipment will be developed to meet identified requirements.

Acquisition Strategy: When the necessary expertise and capacity are available within the DOD, services are ordered from the government source. Otherwise, commercial contracts are used. Equipment required for development projects is obtained by contract from the commercial supplier. Candidate NDI and commercial equipment are identified and evaluated through market surveys and bid sample testing.

FY 1995 Accomplishments:

- 4438 Continued development of TPSs for Kiowa Warrior Mast Mounted Sight and Control Display System
- 2825 Continued development of selected depot and factory level TPSs and on-system diagnostic enhancements for the Longbow Apache
- 737 Continued development of standard Hellfire System Test Set
- Total 8000

FY 1996 Planned Program:

- 1316 Test new Contact Test Set (CTS) hardware
- 1568 Test software for compatibility with new CTS and commence development of software tools for new CTS
- 140 Perform bench testing of NDI equipment
- 2140 Perform initial integration and testing of prototype Electro-Optic Test Facility
- 109 SBIR/STTR
- 15 Revised economic assumption not available for execution
- Total 5288

Project DL59

Page 5 of 12 Pages

Exhibit R-2 (PE 0604746A)

• 856

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604746A Automatic Test Equipment
Development

DL59

FY 1997 Planned Program:

- 618 Test commercial instrumentation in CTS chassis
- 390 Test new state-of-the-art commercial equipment for use in Army test equipment programs
- 845 Continue integration and testing of Electro-Optic Test Facility
- 600 Evaluate down-sized test equipment for field use
- 340 Continue development of software tools for CTS
- Total 2793

B. Project Change Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Previous President's Budget	7892	5437			2878				
Appropriated Value (FY 95)	7726								
Adjustments to FY 95 Appropriated Value	274								
Appropriated Amount (FY 96)		5342							
Adjustments to FY 96		-54			-85				
Adjustments to Budget Year (FY97) since FY 96 PB					2793				
Current President's Budget Submission	8000	5288							

Change Summary Explanation: FY 96 Revised Economic Assumption (-54)
FY97 Revised Inflation Rates (-85)

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
OPA2 Appropriation									
Integrated Family of Test Equipment									
(K18400)	41163	35761	96	4377	17178	34937	49540	Cont'd	Cont'd
(K51600)	12233	1953	1410	10644	24398	11536	18761	Cont'd	Cont'd
(KA4100)	0	5832	0	0	14400	5834	1869	Cont'd	Cont'd

D. Schedule Profile: Not Applicable

Project DL59

Page 6 of 12 Pages

Exhibit R-2 (PE 0604746A)

857

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				
5- Engineering and Manufacturing Development	0604746A Automatic Test Equipment Development				DL59
	Total				
	Prior to				
	FY 1995	FY 1996	FY 1997		
	52797	8000	2793		
Subtotal Product Development				Budget to	Total
Subtotal Support and Management				Complete	Program
Subtotal Test and Evaluation				Cont'd	Cont'd
Total Project	52797	8000	2793	Cont'd	Cont'd

Project DL59

Page 8 of 12 Pages

Exhibit R-3 (PE 0604746A)

859

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM		JUSTIFICATION SHEET (R-2 Exhibit)						DATE	March 1996	
BUDGET ACTIVITY		PE NUMBER AND TITLE						PROJECT		
5 - Engineering and Manufacturing Development		0604746A Automatic Test Equipment Development						D537		
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D537	Integrated Family of Test Equipment	5861	9727	0	0	0	0	0	0	67101
<p>A. Mission Description and Justification: Project D537 - Integrated Family of Test Equipment (IFTE): This project provides for development and upgrade of automatic test equipment that provides testing of electronics-intensive weapon systems at all maintenance levels. IFTE will automatically test and verify the operation of line replaceable units and screen shop replaceable units. Its pre-planned product improvement program upgrades both the software and the hardware. The hardware upgrade will be for inclusion of the latest commercially available virtual memory extension bus for instrumentation (VXI) technology as well as upgrades in the digital and radio frequency areas to support new weapon systems. Program has been restructured and continuing effort is funded under Project DL59 beginning in FY 1997.</p> <p>Acquisition Strategy: When the necessary expertise and capacity are available within the DOD, services are ordered from the government source. Otherwise, commercial contracts are used. Equipment required for development projects is obtained by contract from the commercial supplier. Product improvement developmental work has been obtained sole source from the prime contractor for the Base Shop Test Facility (BSTF) with necessary support to the contractor's effort being provided by government sources.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 1317 Evaluate and developed a method for VXI implementation into IFTE 1306 Completed development and tested computer system and display upgrades for the BSTF 1788 Completed development and implemented new software tools 500 Performed BSTF Test Program Set (TPS) acceptance testing 950 Developed prototype Electronic Repair Shelter Total 5861 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 3471 Develop/modify TPSs for Kiowa Warrior improved processors 3100 Develop additional depot and factory level TPSs for the Longbow Apache 2912 Develop/rehost Kiowa Warrior and Apache TPSs for use with the Electro-Optics Test Facility 217 SBIR/STTR 27 Revised Economic Assumption Total 9727 										

Project D537

Page 9 of 12 Pages

Exhibit R-2 (PE 0604746A)

860

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604746A Automatic Test Equipment
Development

D537

FY 1997 Planned Program: See Project DL59

B. Project Change Summary

Previous President's Budget

Appropriated Amount (FY 95)

Adjustment to FY 95

Appropriated Amount (FY 96)

Adjustment to FY 96

Current Budget Estimate Submission

FY 1995

2880

2831

3030

FY 1996

0

FY 1997

0

9825

-98

9727

0

Change Summary Explanation: FY 96 Revised Economic Assumption (-98)

C. Other Program Funding Summary

OPA2 Appropriation

Integrated Family of Test Equipment

(K18400)

(K51600)

(KA4100)

FY 1995

41163

12233

0

FY 1996

35761

1953

5832

FY 1997

96

1410

0

FY 1998

4377

10644

0

FY 1999

17178

24398

14400

FY 2000

34937

11536

5834

FY 2001

49540

18761

1869

To
ComplTotal
Cost

Cont'd

Cont'd

Cont'd

D. Schedule Profile: Not Applicable

Project D537

Page 10 of 12 Pages

Exhibit R-2 (PE 0604746A)

861

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE _____

March 1996

**PROJECT
D537**

BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
5 - Engineering and Manufacturing Development		0604746A Automatic Test Equipment Development		D537	
A. Project Cost Breakdown					
Primary Hardware Development/Engineering Changes	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Development Support Equipment	1995				1961
Systems Engineering	386				5252
Software Development	1270	3404			40873
Testing	1146	6323			
Miscellaneous	500				
	564				
Total	5861	9727	0		3100
B. Budget Acquisition History and Planning Information					
Performing Organization					
Contractor or Government	Method of Funding	Award or Obligation Date	Performing Activity	Project Office EAC	Total Prior to FY 1995
SAIC, San Diego, CA	C/CPAF	Various	1961	1961	1122
Northrop Grumman, Bethpage, NY	SS/FFP	Jan95 - Jul96	5252	5252	500
Grumman	Various	Various	40873	40873	40873
Aerospace Corp., Bethpage, NY					
McDonnell Douglas Corp., Mesa, AZ	SS/CPIF	Jul96	3100	3100	0
					3100

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
D537

5 - Engineering and Manufacturing Development

0604746A Automatic Test Equipment
Development

Contractor or Government	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
McDonnell Douglas Corp., Huntington Beach, CA	SS/FFP	Aug96	EAC 1500	EAC 1500	0		1500			1500
Honeywell, Inc. Albuquerque, NM	SS/FFP	Aug96	1900	1900	0		1900			1900
Other Contracts Gov't In-House Funded Reqstns					1869	1065				2934
					6475	2117	315			8907
					674					674
Government Furnished Property: Not Applicable										
Subtotal Product Development					51513	5861	9727			67101
Subtotal Support and Management										
Subtotal Test and Evaluation					51513	5861	9727			67101
Total Project										

Project D537

Page 12 of 12 Pages

Exhibit R-3 (PE 0604746A)

863

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE		March 1996	
BUDGET ACTIVITY		PE NUMBER AND TITLE									
5 - Engineering and Manufacturing Development		0604760A Distributive Interactive Simulations - Engineering Development									
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		2279	0	15966	19858	9986	20114	17211	Continuing	Continuing	
DC73 Synthetic Theater of War		0	0	10248	6287	0	0	0	0	16535	
DC74 Developmental Simulation Technology		0	0	2632	2615	3249	3803	3866	Continuing	Continuing	
DC77 Interactive Simulation		0	0	3086	10956	6737	16311	13345	Continuing	Continuing	
DC81 Reconfigurable Simulator Engr Dev		2279	0	0	0	0	0	0	0	2279	

Mission Description and Budget Item Justification: Distributed Interactive Simulation (DIS) is a synthetic environment within which humans may interact through a systematic connection of different subcomponent simulations, simulators and/or instrumented live task forces. These DIS components may reside at multiple and distant locations, using different simulation equipment, tied together through use of a standard communication architecture. This Program Element provides for the engineering development and application of DIS technology to electronically link all subcomponents together to recreate a scaleable battlefield, both horizontally and vertically. The synthetic environment is used to verify the scenarios, tactics/techniques and procedures, train testers on new hardware/software and conduct trial test runs before costly live field tests. Project DC73, Synthetic Theater of War, supports engineering development and integration of the Synthetic Theater of War (STOW) and FORCE XXI. Project DC74, Developmental Simulation Technology, provides engineering development of DIS tools, techniques, standards and applications in support of the Army's Core DIS Facilities (CDF) at Forts Knox, Benning and Rucker, and the Operational Support Facility in Orlando, FL. Project DC77, Interactive Simulation, focuses on engineering development of techniques and technology for DIS and related simulations and simulator efforts. Project DC81, Reconfigurable Simulator Engineering Development, is focused on development of engineering techniques and equipment for reconfigurable simulators. Beginning in FY97, the Army realigned funding for these projects together and redefined the Program Element to more clearly describe and identify Distributed Interactive Simulation development efforts. Work done on this program will have benefit across the Army and DoD by providing standards for interoperability and software reuse in this emerging domain. This Program Element supports research efforts in the engineering and manufacturing development phases of the acquisition cycle and is therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604760A Distributive Interactive Simulations - Engineering Development								DC73	
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DC73	Synthetic Theater of War	0	0	10248	6287	0	0	0	0	16535	
<p>A. Mission Description and Budget Item Justification: Project DC73 - Synthetic Theater of War: This project supports engineering development and integration of the Synthetic Theater of War (STOW) and FORCE XXI. Development focuses on leveraging existing and emerging technology in a manner that produces substantial and continual improvements in combat readiness through the use of full spectrum, high fidelity, distributed simulation capability to support a large scale DIS user based exercise/experiment for JOINT VENTURE training and analytical needs.</p> <p>Acquisition Strategy: Competitive development leading to competitive procurement against performance specifications</p> <p>FY 1995 Accomplishments: Program not funded in FY 1995</p> <p>FY 1996 Planned Program: Program not funded in FY 1995</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 2800 Develop and apply distributed simulation technology to support the Synthetic Theater of War 7448 Develop and integrate emerging simulation technology in support of FORCE XXI training program. <p>Total 10248</p> <p>B. Project Change Summary</p> <p>Previous President's Budget (FY 1996) 0</p> <p>Appropriated Value (FY 1995) 0</p> <p>Adjustments to FY 1995 Appropriated Value 0</p> <p>Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget 10248</p> <p>Current Budget Estimate Submission 0</p> <p>C. Other Program Funding Summary</p> <p>OPA3, KA6000, Reconfigurable Simulators 0</p> <p>OMA 0</p> <p>Project DC73</p>											
										To	Total
										Compl	Cost
										Cont'd	Cont'd
										Cont'd	Cont'd

Exhibit R-2 (PE 0604760A)

Page 2 of 13 Pages

865

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE										PROJECT
5 - Engineering and Manufacturing Development		0604760A Distributive Interactive Simulations - Engineering Development										DC73
<u>D. Schedule Profile</u>		FY 1995		FY 1996		FY 1997						
1		2	3	4	1	2	3	4				
Award Engr & Integra												
Development of DIS too												X
Systems Integration												X

Project DC73

Page 3 of 13 Pages

Exhibit R-2 (PE 0604760A)

866

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604760A Distributive Interactive Simulations -
Engineering Development

DC73

A. Project Cost BreakdownSystems Engineering & Integration
Hardware Design & Development
Reliability, Availability and Maintainability
Verification, Validation & Accreditation
Total

FY 1995	FY 1996	FY 1997
		6510
		1600
		1738
		400
		10248

B. Budget Acquisition History and Planning InformationPerforming Organizations

Contractor or Government

Method/Type of Funding

Vehicle

Award or Obligation Date

Performing Activity

EAC

Total Prior to FY 1995

FY 1995

FY 1996

FY 1997

Budget to Complete

Total Program

13260

4862

8398

0

0

0

1250

825

2075

600

1200

Project DC73

Page 4 of 13 Pages

Exhibit R-3 (PE 0604760A)

867

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996																				
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT																					
5 - Engineering and Manufacturing Development		0604760A Distributive Interactive Simulations - Engineering Development								DC74																					
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost																					
DC74 Developmental Simulation Technology		0	0	2632	2615	3249	3803	3866	Continuing	Continuing																					
<p>A. Mission Description and Budget Item Justification : Project DC74 - Developmental Simulation Technology: This project supports the Core Distributed Interactive Simulation (DIS) Facilities (CDF) at Fort Knox, KY, Fort Rucker, AL, Fort Benning, GA and the Operational Support Facility in Orlando, FL, which provide virtual combined arms battlefield with the warfighter-in-the-loop to evaluate weapon system concepts, tactics, doctrine and test plans.</p> <p>Acquisition Strategy: Competitive development leading to competitive procurement against performance specifications</p> <p>FY 1995 Accomplishments: Development activities funded in PE 0604759A, Major Test and Evaluation, Project DC55, Distributive Dev Simulation Technology.</p> <p>FY 1996 Planned Program: Development activities funded in PE 0604759A, Major Test and Evaluation, Project DC55, Distributive Dev Simulation Technology.</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 2632 Continue development of Advanced Distributed Simulation Technology support which enables combat, materiel and training developers and testers to perform experiments to test tactics, doctrine and weapon design. <p>Total 2632</p> <p>B. Project Change Summary</p> <table> <tr> <td>Previous President's Budget (FY 1996)</td> <td>FY 1995</td> <td>FY 1996</td> <td>FY 1997</td> </tr> <tr> <td>Appropriated Value (FY 1995)</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Adjustments to FY 1995 Appropriated Value</td> <td></td> <td></td> <td>2632</td> </tr> <tr> <td>Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Current Budget Estimate Submission</td> <td>0</td> <td>0</td> <td>2632</td> </tr> </table> <p>Change Summary Explanation:</p> <p>Funding: FY 1997 - Funds in support of this project are transferred from Program Element 0604759A, Major Test and Evaluation Investment, Project DC55, Distributed Development Simulation Technology.</p>												Previous President's Budget (FY 1996)	FY 1995	FY 1996	FY 1997	Appropriated Value (FY 1995)	0	0	0	Adjustments to FY 1995 Appropriated Value			2632	Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget				Current Budget Estimate Submission	0	0	2632
Previous President's Budget (FY 1996)	FY 1995	FY 1996	FY 1997																												
Appropriated Value (FY 1995)	0	0	0																												
Adjustments to FY 1995 Appropriated Value			2632																												
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget																															
Current Budget Estimate Submission	0	0	2632																												

Project DC74

Page 5 of 13 Pages

Exhibit R-2 (PE 0604760A)

868

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0604760A Distributive Interactive Simulations - Engineering Development

DC74

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	
3373	5997						
							To
							Compl
							Cost
							Total
							9370

	FY 1995	FY 1996	FY 1997
1	2	4	2
	3	1	3
			X

ADST II Delivery Order Contract Award

Page 6 of 13 Pages

Exhibit R-2 (PE 0604760A)

UNCLASSIFIED

UNCLASSIFIED

[illegible]

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604760A Distributive Interactive Simulations -
Engineering Development

DC77

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
								Continuing	Continuing
DC77 Interactive Simulation	0	0	3086	10956	6737	16311	13345		

A. Mission Description and Budget Item Justification: Project DC77 - Interactive Simulation: This project focuses on engineering development of techniques and DIS technology of wide area simulation networking in support of modeling and simulation, doctrinal development, training, and operations, utilizing live, virtual and constructive simulations. Development also supports related simulations and simulator efforts, including the Battlelab Reconfigurable Simulators. Development activities associated with this project were budgeted in Program Element 0604715A, Non-System Training Devices Engr Dev, Project DC91, Distributive Interactive Simulation, in FY 1995 and FY 1996.

Acquisition Strategy: Competitive development leading to competitive procurement against performance specifications

FY 1995 Accomplishments: Funded under Project DC 91, Distributive Interactive Simulation, PE 0604715A

FY 1996 Planned Program: Funded under Project DC 91, Distributive Interactive Simulation, PE 0604715A

FY 1997 Planned Program:

- 1376 Provide systems engineering and develop standards, interoperability and accreditation processes to support the synthetic environment.
- 460 Develop software upgrades/enhancements to modular semi-automated forces (MODSAF).
- 1250 Develop Battlelab reconfigurable simulator.

Total 3086

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	0	0	0
Appropriated Amount (FY 1995)	0	0	0
Adjustments to FY 1995	0	0	0
Adjustments to Budget Year (FY 1997) since			3086
FY 1996 President's Budget			3086
Current President's Budget Submit			3086

Project DC77

Page 8 of 13 Pages

Exhibit R-2 (PE 0604760A)

871

UNCLASSIFIED

UNCLASSIFIED

RD&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604760A Distributive Interactive Simulations - Engineering Development								DC77	
Change Summary Explanation: Funding: FY 1997 - This project was funded in Program Element 0604715A, Non-System Training Devices Engineering Development, Project DC91, Distributive Interactive Simulation.											
C. Other Program Funding Summary RDTE, A Budget Activity 5, PE 0604715A, Project DC91, Distr Interactive Simulation OPA3, KA6000, Reconfigurable Simulators OMA											
		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost	
		3373	5997	0	0	0	0	0	0	9370	
		12222	12100	13335	16480	7828	3928	3153	Cont'd	Cont'd	
				11100	12300	12400	12500	12600	Cont'd	Cont'd	
		FY 1995		FY 1996		FY 1997					
1		2 3	4	1 2	3 4	1	2 3	4			
							X				
							X				
D. Schedule Profile Award Delivery Order, SEI Contract DIS Verification & Validation											

Exhibit R-2 (PE 0604760A)

Page 9 of 13 Pages

Project DC77

872

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604760A Distributive Interactive Simulations -
Engineering Development

DC77

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Systems Engineering & Integration			1250
Develop DIS tools, techniques, standards			836
Develop Reconfigurable Simulator			1000
Total			3086

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1996			FY 1997			Budget to Complete	Total Program
Product Development Organizations													
TBD	Competitive	Feb 97	TBD	2036	0	0	0	0	2036	0	0	Cont'd	Cont'd
Support and Management Organizations													
Miscellaneous	Various	Various	800	800	0	0	0	0	800	0	0	Cont'd	800
Test & Evaluation Organizations	Various	Various	250	250	0	0	0	0	250	0	0	Cont'd	250

Project DC77

Page 10 of 13 Pages

Exhibit R-3 (PE 0604760A)

873

UNCLASSIFIED

UNCLASSIFIED

RD&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996																			
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT																				
5 - Engineering and Manufacturing Development		0604760A Distributive Interactive Simulations - Engineering Development								DC81																				
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost																				
DC81 Reconfigurable Simulator Engr Dev		2279	0	0	0	0	0	0	0	2279																				
<p>A. Mission Description and Budget Item Justification: Project DC81 - Reconfigurable Simulator Engineer Development: This project initiates engineering development of both software and hardware for reconfigurable simulators for use in TRADOC Battlelabs. Simulators developed in this program are not system specific, but will represent generic equipment. Reconfigurable simulators will be used to simulate existing and developmental equipment to explore new concepts and systems for technology insertion, and for the development of doctrine necessary to mesh new equipment items into training and battle situations. Continuing development efforts in support of this project are transferred to PE 0604715A, Project DC91, Distributive Interactive Simulation in FY 1996.</p> <p>Acquisition Strategy: Competitive development leading to competitive procurement against performance specifications</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 1160 Developed engineering techniques, drawings and specifications for design and fabrication of reconfigurable simulators. 679 Built prototype reconfigurable simulators with various designs for evaluation in Battlelabs. 440 Conducted verification, validation and accreditation of software and hardware reconfigurable simulator modules <p>Total 2279</p> <p>FY 1996 Planned Program: Program continues as part of PE 0604715A, Project DC91, Distributive Interactive Simulation</p> <p>FY 1997 Planned Program: Program continues as part of PE 0604760A, Project DC77, Interactive Simulation</p> <p>B. Project Change Summary</p> <table border="0"> <tr> <td>Previous President's Budget (FY 1996)</td> <td>FY 1995</td> <td>FY 1996</td> <td>FY 1997</td> </tr> <tr> <td>Appropriated Value (FY 1995)</td> <td>6412</td> <td>0</td> <td>0</td> </tr> <tr> <td>Adjustments to FY 1995 Appropriated Value</td> <td>6278</td> <td></td> <td></td> </tr> <tr> <td>Current President's Budget Submit</td> <td>- 3999</td> <td>0</td> <td>0</td> </tr> <tr> <td></td> <td>2279</td> <td></td> <td></td> </tr> </table> <p>Change Summary Explanation: Funding: FY 1995 - Reprogrammed \$3.999M to Project DC80, PE 0603760A, Distributive Interactive Simulations - Advanced Development and Project D241, PE 0604715A, Non-System Training Devices - Engineering Development</p>											Previous President's Budget (FY 1996)	FY 1995	FY 1996	FY 1997	Appropriated Value (FY 1995)	6412	0	0	Adjustments to FY 1995 Appropriated Value	6278			Current President's Budget Submit	- 3999	0	0		2279		
Previous President's Budget (FY 1996)	FY 1995	FY 1996	FY 1997																											
Appropriated Value (FY 1995)	6412	0	0																											
Adjustments to FY 1995 Appropriated Value	6278																													
Current President's Budget Submit	- 3999	0	0																											
	2279																													

Project DC81

Page 11 of 13 Pages

Exhibit R-2 (PE 0604760A)

874

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604760A Distributive Interactive Simulations -
Engineering Development

DC81

C. Other Program Funding Summary

RDTE, A Budget Activity 5, PE 0604715A,
Project DC91, Distributive Interactive Simulation
RDTE, A Budget Activity 5, PE 0604760A,
Project DC77, Interactive Simulation
OPA3, KA6000, Reconfigurable Simulators
OMA

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
	3373	5997	0	0	0	0	0	0	9370
			3086	10956	6737	16311	13345	Cont'd	Cont'd
		12222	13335	16480	7828	3928	3153	Cont'd	Cont'd
	0	12100	11100	12300	12400	12500	12600	Cont'd	Cont'd

D. Schedule Profile

Award Competitive System Contract
Primary Hardware Development
Systems Integration

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
1	2	3	4	1	2	3	4
			X*				
			X				
				X			

Project DC81

Page 12 of 13 Pages

Exhibit R-2 (PE 0604760A)

875

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

March 1996

PE NUMBER AND TITLE

0604760A Distributive Interactive Simulations - Engineering Development

DC81

	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>
--	----------------	----------------	----------------

Performing Organizations

Project	Total
Office	Prior to
EAC	FY 1995

Roader Development Program		Dec 95	
		Competitive	Dec 95
Hughes Trng Inc.	Competitive	Dec 95	

Support and Management Organizations

Miscellaneous ······ Various

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE		March 1996						
BUDGET ACTIVITY		PE NUMBER AND TITLE								
5 - Engineering and Manufacturing Development		0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)								
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost		28246	23861	15758	20631	21235	28299	27122	Continuing	Continuing
D113 Joint Tactical Ground Station		9435	0	0	0	0	0	0	0	32527
D909 Tactical Electronic Surveillance System - Eng Dev		18811	23861	15758	20631	21235	28299	27122	Continuing	Continuing

Mission Description and Budget Item Justification: This Program Element (PE) supports the engineering development directed at meeting the tactical commanders intelligence mission requirements for contingency force deployment and deep battle surveillance and targeting - as stated in Field Manual 100-5. Specific Signals Intelligence (SIGINT) and multi-spectral developments are managed within the Army's Tactical Exploitation of National Capabilities (TENCAP) program. The scope of the program is directed towards advanced techniques and capabilities to exploit National and selected theater capabilities that uniquely meet stated Army tactical intelligence and targeting needs and deficiencies for near-real-time receipt, analysis, and dissemination to the appropriate tactical echelon. Further details may be found in the Tactical Intelligence and Related Activities (TIARA) Congressional Justification Book, Volume II and the TENCAP Master Plan. The projects in this PE support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996						
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT				
5 - Engineering and Manufacturing Development		0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)			D113				
COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D113 Joint Tactical Ground Station	9435	0	0	0	0	0	0	0	32527

A. Mission Description and Budget Item Justification This project funds the development of two Engineering and Manufacturing Development (EMD) JTAGS units. The project is a follow-on to the Tactical Surveillance Demonstration (TSD) and Tactical Surveillance Demonstration Enhancement (TSDE) programs (Project D909). JTAGS is designed for in-theater receipt, processing and dissemination of warning and alerting data from Defense Support Program (DSP) sensors and follow-on space based sensors of major tactical events such as missile launches. JTAGS supports active defense, attack operations, and passive defense. By being located in-theater, the system improves the warning and alerting response time and eliminates several single-point-failure susceptible communications relay nodes. It also serves as the in-theater element of the USSPACECOM's Tactical Alert System (TES). The warning and cueing information gathered will be disseminated via Tactical Information Broadcast System (TIBS), Tactical Related Application (TRAP) and other existing in-theater communication networks.

Acquisition Strategy: JTAGS transitioned into a formal ACAT III NDI acquisition program at the MS II In-Process Review (IPR) on 6 May 1994. Based on the decision made by the Milestone Decision Authority (MDA), JTAGS entered the Engineering and Manufacturing (EMD) phase. The EMD phase called for design, total integration and delivery of two EMD prototypes. Technical and operational testing was completed in Nov 95. Milestone III approval was obtained on 26 Feb 1996.

FY 1995 Accomplishments:

- 6897 Developed and delivered two JTAGS EMD units.
- 1851 Completed developmental and operational testing of EMD units.
- 687 Prepared for MS III decision review.
- Total 9435

FY 1996 Planned Program: Project not funded in FY 1996

FY 1997 Planned Program: Project not funded in FY 1997

Project D113

Page 2 of 9 Pages

Exhibit R-2 (PE 0604766A)

878

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)

D113

B. Project Change Summary

FY 1995 FY 1996 FY 1997

Previous President's Budget (FY 1996)

8851

0

0

Appropriated Amount (FY 1995)

8665

0

0

Adjustments to FY 1995

+770

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since

0

FY 1996 President's Budget

Current Budget Submit

9435

0

0

Change Summary Explanation:

Funding: FY 1995: +770 were reprogrammed to support Army priority requirements

C. Other Program Funding Summary

Other Procurement Army, OPA-2

BZ8410 Joint Tactical Ground Station (JTAGS)

RDTE, A Budget Activity 7

0208053A JTAGS (TIARA)

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

To

Compl

Total

Cost

0

29950

0

3059

2846

0

0

0

35855

2124 3192

5316

D. Schedule Profile

FY 1995

FY 1996

FY 1997

1

2

3

4

1

2

3

4

1

2

3

4

Deliver 1st EMD Prototype

Begin Developmental Test

Deliver 2nd EMD Prototype

Begin Operational Tests

Milestone III IPR

X*

X*

* Milestones Completed

Project D113

Page 3 of 9 Pages

Exhibit R-2 (PE 0604766A)

879

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE	FY 1995	FY 1996	FY 1997
5 - Engineering and Manufacturing Development	0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)			
A. Project Cost Breakdown				
Prime Contractor		2199	0	0
Contract Engineering Support		2070	0	0
Program Management Support		2600	0	0
Government Engineering Support		2497	0	0
Government Furnished Equipment		69	0	0
Total		9435		0
B. Budget Acquisition History and Planning Information: Not Applicable				

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)

D909

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D909 Tactical Electronic Surveillance System - Eng Dev	18811	23861	15758	20631	21235	28299	27122	Continuing	Continuing

A. Mission Description and Budget Item Justification: This project supports the engineering development/enhancement of the Electronic Tactical User Terminal (ETUT), Mobile Integrated Tactical Terminal (MITT) (replaces the Tactical High Mobility Terminal (THMT)), Forward Area Support Terminal (FAST), Electronic Processing Dissemination System (EPDS) and Tactical Exploitation System (TES). The Army's emerging TES will incorporate the standards and protocols dictated by the Common Imagery Ground/Surface System (CIG/SS) program. TES brings all of the existing and emerging Army TENCAP capabilities (EPDS, MIES, and ETRAC) into an integrated common baseline; downsized, modular and scalable to meet a wide range of contingency requirements. TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems (including MIES and ETRAC that are funded under the Defense Airborne Reconnaissance Program (DARP) (PE 0305154D)). Graphic Situation Display (GSD) is a jointly funded program to develop a means to computer generate, transmit, and display graphical representations of the battle space thereby saving communicating bandwidth, manpower and time. The beta software portion of the GSD effort was funded with FY 1993 Military Exploitation of Reconnaissance and Intelligence Technology (MERIT) funds.

Acquisition Strategy: As pioneers in rapid acquisition, ASPO's success in delivering systems as those described above to warfighters can be directly attributed to an environment emphasizing stable funding, low density acquisition, minimal use of MILSPECS, and managed competition. By tailoring existing technology, leveraging the best commercial practices, and using commercial and government-off the shelf software, ASPO minimizes risk while maximizing efficiency. Finally, dedicated cradle to grave Integrated Logistics Support (ILS) for TENCAP systems is accomplished through a coordinated effort by Government and contractor personnel and facilities.

FY 1995 Accomplishments:

- 8980 Continued software upgrades and enhancements for refinement of the TENCAP Common Baseline to fully exploit National capabilities to meet emerging worldwide contingency scenarios which includes major upgrades to communications component (SUCCESS Radio) which is common to all TENCAP systems.
- 1240 Continued engineering development of five additional MITTs to replace existing THMT.
- 1330 Continued the retrofit of ETUT's with enhanced MITT hardware and software.
- 4117 Initiated effort to upgrade ETUT to include EPDS capabilities, which will allow for the defielding of EPDS systems in FY97.
- 3144 Continued support to TENCAP program management and administrative activities (e.g. FFRDC (Aerospace), ARL support, ASPO support and Contractor SETA support).

Total 18811

Project D909

Page 5 of 9 Pages

Exhibit R-2 (PE 0604766A)

881

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
5 - Engineering and Manufacturing Development	0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)	March 1996	D909
<p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 11363 Continue software upgrades and enhancements for the refinement of the TENCAP Common Baseline to fully exploit National capabilities such as integration of communications capabilities to meet changing architectures and implementation of software appliqué to provide the operational commander with enhanced battlefield intelligence products. 891 Complete the retrofit of ETUT with enhanced MITT hardware and software. 3957 Continue effort to upgrade ETUT to include EPDS capabilities. 900 Complete building/fielding of five additional MITTs. 480 Initiate engineering development of TES. 5675 Continue support to TENCAP program management and administrative activities (e.g. FFRDC (Aerospace), ARL support, ASPO support, Army Topographic Engineering Center (TEC) and Contractor SETA support). 527 Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR) 68 Revised Economic Assumptions amount not available for execution. Total 23861 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 5556 Continue software upgrades and enhancements for the refinement of the TENCAP Common Baseline to fully exploit National capabilities such as integration of communications capabilities to meet changing architectures and implementation of software appliqué to provide the operational commander with enhanced battlefield intelligence products. 5550 Continue engineering development of TES. 1246 Complete effort to upgrade ETUT to include EPDS capabilities. 3406 Continue support to TENCAP program management and administrative activities (e.g. FFRDC (Aerospace), ARL support, ASPO support, Army Topographic Engineering Center (TEC) and Contractor SETA support). Total 15758 			
Project D909		Page 6 of 9 Pages	Exhibit R-2 (PE 0604766A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE		March 1996		PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE							
5 - Engineering and Manufacturing Development		0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)							
B. Project Change Summary		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	
Previous President's Budget (FY 1996)		19214	24699			15302			
Appropriated Amount (FY 1995)		18811							
Adjustments to FY 1995									
Appropriated Amount (FY 1996)			24101						
Adjustments to FY 1996			-240			+456			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget									
Current Budget Submit/President's Budget		18811	23861			15758			
Change Summary Explanation: Funding: FY 1996: (-240) Revised Economic Assumptions inflation rates.									
C. Other Program Funding Summary		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Total Cost
RDTE, A Budget Activity 4		11481	0	0	0	0	0		
PE 0603730A Project D560									
Tact Surv Sys - Adv Dev									
PE 0603766A Project D907		14519	27460	26060	23200	27094	28151	32668	Cont
TENCAP-Adv Dev									
RDTE, A Budget Activity 4		2049	0	0	0	0	0	0	
PE 0604740A Project D662									
Tact Surv Sys - Eng Dev									
RDTE, D Budget Activity 7		39313	42737	47780	35264	13750	13824	13723	Cont
PE 0305154D Project P531									
DARP									
Other Procurement Army, OPA-2		4636	4473	1758	1705	1758	4678	13936	Cont
BZ7315 TENCAP									
BA0329 DARP		2411	0	0	0	0	0	0	
Procurement, Defense Wide									
PE 0305154D		51534	80822	98486	94583	76123	72124	67173	Cont
Project D909									
Exhibit R-2 (PE 0604766A)									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)

D909

	FY 1996	FY 1997
--	---------	---------

1. The first step is to identify the problem or question that needs to be addressed. This involves understanding the context and the specific requirements of the task.

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
5 - Engineering and Manufacturing Development	0604766A Tactical Exploitation of National Capabilities (TENCAP) - Engineering & Manufacturing Development (TIARA)	D909		
A. Project Cost Breakdown				
MITT	FY 1995 1240	FY 1996 900	FY 1997 0	
ETUT	5447	4848	1246	
TES	0	480	5550	
Common Baseline (*1)	8980	11363	5556	
FFRDC (*2)	995	1767	1326	
System Engineering (Contractor) (*2)	2149	3908	2080	
SBIR/STTR		527		
Revised Economic Assumptions amount not available for Execution		68		
Total	18811	23861	15758	
(*1) TENCAP Common Baseline addresses common subsystems, planned improvements, key activities and ongoing/planned initiatives determined to have potential application to multiple TENCAP systems (including MIES and ETRAC that are funded under the DARP (PE 0305154D))				
(*2) In FY 1996 and beyond, efforts previously funded under 0604740A.D662 are consolidated into this project				
B. Budget Acquisition History and Planning Information: Not Applicable				

Project D909

Page 9 of 9 Pages

Exhibit R-3 (PE 0604766A)

885

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604768A Brilliant Anti-Armor (BAT) Submunition

CO-3T (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	115088	194831	180407	177728	137525	152990	100569	6760	1702995
D641 BAT	90379	96324	68622	24789	0	0	0	0	917211
L687 BAT P3I	14954	36121	34221	64804	64137	70938	37238	0	322413
D688 ATACMS BLK II	9755	62095	77559	76779	36319	13296	2146	0	277949
D686 ATACMS BLK IIA	0	0	0	11133	35990	63999	61185	6760	179067
D2NT BAT Operational Test	0	291	5	223	1079	4757	0	0	6355

Mission Description and Budget Item Justification: The BAT system supports the Army's deep fires doctrine that calls for the destruction and disruption of threat forces and long range weapons at ranges in excess of 100 kilometers before they can influence the maneuver battle. In the past, the only options have been to engage these targets with attack helicopters or fixed wing aircraft. While effective, these options place critical resources and their air crews at risk. The BAT system significantly reduces this risk through its autonomous acquisition and terminal guidance capabilities to attack well defended armored forces behind enemy lines. The BAT system includes the BAT submunition, a pre-planned product improvement (P3I) BAT submunition, the Army Tactical Missile System Block II (ATACMS BLK II) missile, and the ATACMS BLK IIA missile. BAT is a dual-sensor (acoustic and infrared) submunition that autonomously seeks out and destroys moving armored vehicles without human interaction. It is an unpowered, aerodynamically stable vehicle, approximately 36 inches long, 5.5 inches in diameter and weighs 44 pounds. BAT and BAT P3I submunitions are carried deep into enemy territory by the two Army TACMS variants, then dispensed over a large target array to selectively attack and destroy individual targets. The BAT P3I program will improve the sensor and warhead subassemblies to increase lethality and to enable the BAT submunition to attack cold, stationary, armored targets and other targets of high value. The ATACMS BLK II missile is a version of the currently fielded and combat-proven Army TACMS Block I missile and is designed to carry 13 BAT or BAT P3I submunitions. The ATACMS BLK IIA missile is an extended range version of the ATACMS BLK II missile and will carry 6 BAT P3I submunitions out to ranges in excess of 200 kilometers. The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									PROJECT
5 - Engineering and Manufacturing Development		0604768A Brilliant Anti-Armor (BAT) Submunition									D641
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D641	BAT	90379	96324	68622	24789	0	0	0	0	917211	
<p>A. Mission Description and Budget Item Justification: Project D641-BAT: The BAT submunition is an unpowered, aerodynamically stable vehicle approximately 36 inches long, 5.5 inches in diameter, and weighs 44 pounds. The BAT is an acoustic and infrared terminally guided submunition that searches for, tracks, and destroys armored, mobile targets. BAT submunitions are carried deep into enemy territory by a variant of the Army Tactical Missile System (ATACMS), then dispensed over numerous high-payoff targets to selectively attack and destroy individual targets. By utilizing acoustic technology, BAT has the advantage of a large footprint which allows it to compensate for target location errors. Being a certified round, the BAT submunition has a low sustainment cost.</p> <p>Acquisition Strategy: The BAT system is a sole source EMD program.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 55695 Conduct EMD Program • 25884 Conduct Carrier Integration Activities and other studies • 8800 Conduct Test Range and Target Operation, Maintenance and Improvements Total 90379 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 66050 Conduct EMD Program • 19089 Conduct Carrier Integration Activities and other studies • 8800 Conduct Test Range and Target Operation, Maintenance and Improvements • 271 Revised Economic Assumption not available for execution • 2114 SBIR/STTR decrements Total 96324 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 56364 Conduct EMD Program • 5458 Conduct Carrier Integration Activities and other studies • 6800 Conduct Test Range and Target Operation, Maintenance and Improvements Total 68622 											

Project D641

Page 2 of 14 Pages

Exhibit R-2 (PE 0604768A)

887

UNCLASSIFIED

UNCLASSIFIED

RD&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604768A Brilliant Anti-Armor (BAT) Submunition

D641

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget for (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

92287

90379

FY 1996

99028

FY 1997

71525

97297

-973

-2903

68622

Change Summary Explanation: FY 1996 funding adjustment due to Revised Economic Assumptions (-973).

FY 1997 funding adjustment due to Revised Economic Assumptions/Improved Management Savings (-2903).

C. Other Program Funding Summary

Missile Procurement, Army

CA 6100 BAT

To
Complete
1275738
Total
Cost
1891389

FY 1995 FY 1996 FY 1997 FY 1998 FY 1999 FY 2000 FY 2001

D. Schedule Profile

Begin Subsystem Qual

Complete DV1

Complete Wind Tunnel/Sled Tests

Complete Subsystem Qual

Initiate Contractor Developmental Test

(CDT)

Complete CDT

* Milestone completed.

FY 1995 FY 1996 FY 1997 FY 1998 FY 1999 FY 2000 FY 1997

1

2

3

4

1

2

3

4

1

2

3

4

X*

X

X

X

X

X

Project D641

Page 3 of 14 Pages

Exhibit R-2 (PE 0604768A)

888

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604768A Brilliant Anti-Armor (BAT) Submunition

PROJECT

D641

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Contractor Engr Support	74386	77679	51301
Developmental Test & Evaluation	4667	5283	6090
Program Management Spt	5389	6572	4645
Program Management Personnel	5937	6790	6586
Total	90379	96324	68622

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Northrop	SS/CPAF/	5 Jun 91		549300	470806	74386	77679	51301	20464	694636
Grumman Corp	CPFF				51626	5937	6790	6586	1329	72268
In-House Support	PO	OCT			50149	2908	1809	2513	825	58204
Support and Management Organizations					40449	2481	4763	2132	961	50786
SETA & Program	SS/CPFF	NOV			13987	1894	2854	2958	612	22305
Mgmt Spt					10080	2773	2429	3132	598	19012
Misc OGA	PO	OCT								
Activities										
Test and Evaluation Organizations										
Range Support	PO	OCT								
Other Test	PO	OCT								

Government Furnished Property: Not applicable.

Subtotal Product Development	522432	80323	84469	57887	21793	766904
Subtotal Support and Management	90598	5389	6572	4645	1786	108990
Subtotal Test and Evaluation	24067	4667	5283	6090	1210	41317
Total Project	637097	90379	96324	68622	24789	917211

Project D641

Page 4 of 14 Pages

Exhibit R-3 (PE 0604768A)

889

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		March 1996	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
5 - Engineering and Manufacturing Development		0604768A Brilliant Anti-Armor (BAT) Submunition								D687			
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost			
D687	BAT P3I	14954	36121	34221	64804	64137	70938	37238	0	322413			

A. Mission Description and Budget Item Justification: Project D687-BAT P3I: The BAT P3I submunition maintains the BAT length, diameter, and weight configurations. The BAT P3I is a multi-sensored, terminally guided submunition that searches for, tracks, and destroys specific targets including mobile armored combat vehicles, cold stationary armored combat vehicles, Surface-to-Surface missile (SSM) Transporter Erector Rocket Launchers (TELS), and Heavy Multiple Rocket Launchers (MRL). BAT P3I submunitions are carried deep into enemy territory by variants of the Army Tactical Missile System (ATACMS), then dispensed over numerous high-payoff targets to selectively attack and destroy individual targets. BAT P3I is intended to increase submunition lethality and expand the target arrays to be attacked. Being a certified round, the BAT P3I submunition has a low sustainment cost. This program will incorporate new seeker, warhead, and microprocessor technologies into the current BAT configuration while maintaining the current BAT form, fit design and maximum commonality of BAT components. This program includes studies/demonstrations pertaining to technology advancements, alternate carriers, target recognition, and acoustic/infrared/millimeter wave characterization of expanded target sets.

Acquisition Strategy: The BAT P3I system is a sole source demonstration validation program with competitive seeker subcontractors.

FY 1995 Accomplishments:

- 13232 Conduct DEM/VAL Phase II program
- 1697 Conduct warhead development
- 25 Test Range activities
- Total 14954

FY 1996 Planned Program:

- 30260 Conduct P3I DEM/VAL Phase II program
- 3958 Hardware-in-the-Loop (long lead and design)
- 996 Test Range/Warhead Activities
- 101 Revised Economic Assumption not available for execution
- 806 SBIR/STTR decrements
- Total 36121

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604768A Brilliant Anti-Armor (BAT) Submunition

D687

FY 1997 Planned Program:

- 30842 Conduct P31 DEM/VAL Phase II program
- 1615 Develop Warhead Lethality Models
- 1764 Conduct Captive Flight Tests

Total 34221

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to (FY 1995) Appropriated Value

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

15275

14954

FY 1996

37136

FY 1997

34742

36486

-365

-521

14954

36121

34221

Change Summary Explanation: FY 1996 funding adjustment due to Revised Economic Assumptions (-365)

FY 1997 funding adjustment due to Revised Economic Assumptions/Improved Management Savings (-521).

C. Other Program Funding Summary: There are no other related RDT&E or other appropriation efforts.

D. Schedule Profile

	FY 1995		FY 1996		FY 1997			
	1	2	3	4	1	2	3	4
Dem Val Phase II CA								
Captive Flight Tests (CFT)	X*					X		
Target Signature Collection								
Hardware-in-the-Loop Critical Design Review								

*Milestone completed.

Project D687

Page 6 of 14 Pages

Exhibit R-2 (PE 0604768A)

891

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	PROJECT
BUDGET ACTIVITY											
5 - Engineering and Maintenance Development											
PE NUMBER AND TITLE											
0604768A Brilliant Anti-Armor (BAT) Submunition											D687
A. Project Cost Breakdown											
Contract Engineering Support											
Developmental Test & Evaluation											
Program Management Support											
Program Management Personnel											
Total											
B. Budget Acquisition History and Planning Information											
Performing Organizations											
Contractor or Government	Method	Type	Award or Obligation	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Performing Activity	Yr		Date	EAC	EAC	FY 1995	FY 1996	FY 1997			
Product Development Organizations											
Northrop	SS-C		DEC		264140	9990	27442	25695		201013	264140
Gruzman Corp											
In-House Support	PO		OCT			2260	6605	4217		20864	33946
Support and Management Organizations											
SETA & Prog	SS-CPFF		NOV			710	458	645		3100	4913
Mgmt Spt											
MISC OGA	PO		OCT			1039	1096	1545		1870	5550
Activities											
Test and Evaluation Organizations											
Range Support	PO		OCT			25	75	764		4700	5564
Other Test	PO		OCT			930	445	1355		5570	8300
Activities											
Government Furnished Property: Not applicable.											

Project D687

Page 7 of 14 Pages

Exhibit R-3 (PE 0604768A)

892

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604768A Brilliant Anti-Armor (BAT) Submunition

D687

Total

Prior to

FY 1995

FY 1997

FY 1996

FY 1995

Budget to

Complete

Total

Program

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

12250

1749

955

14954

29912

2190

2119

34221

34047

1554

520

36121

221877

4970

10270

237117

298086

10463

13864

322413

Project D687

Page 8 of 14 Pages

Exhibit R-3 (PE 0604768A)

893

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604768A Brilliant Anti-Armor (BAT) Submunition

D688

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D688: ATACMS BLK II	9755	62095	77559	76779	36319	13296	2146	0	277949

A. Mission Description and Budget Item Justification: Project D688-Army Tactical Missiles System Block II: The Army Tactical Missile System Block II (ATACMS BLK II) will be a ground launched, solid propellant, inertially guided (GPS aided) missile system with 13 BATs or P3I BATs as its payload. The mission of the ATACMS BLK II is to delay, disrupt, neutralize, or destroy armored combat vehicles and other postulated high-payoff targets. Once the BAT P3I submunition is incorporated into the ATACMS BLK II, these targets will include cold stationary armored combat vehicles, mobile armored combat vehicles, heavy multiple rocket launchers and missile transporter/launchers. ATACMS BLK II will carry and dispense BAT and BAT P3I submunitions deep in enemy territory where these submunitions will automatically track and destroy numerous high-payoff targets. Global Positioning System (GPS) technology will increase accuracy in flight, reducing target location errors. ATACMS BLK II will be launched from the M270 launcher. Further, these funds will allow for future improvement program studies/demonstrations pertaining to technology advancements, payload variants, propulsion, guidance and control, and fire control improvements. This includes studies addressing Block II integration with other platforms.

Acquisition Strategy: The Army Tactical Missile System Block II is a sole source performance specification requirement program.

FY 1995 Accomplishments:

- 895 DA IPR
- 1455 Complete Preliminary Design Support
- 7405 Continued Development Contract Award
- Total 9755

FY 1996 Planned Program:

- 52718 Conduct Continued Development including initiation of Block II/BAT Integration Activities.
- 500 Prepare to conduct Sled Tests
- 317 Conduct Range Planning and Activities to Accommodate Block II Flight Tests
- 7000 Accelerate planned activities for an early Development Flight Test
- 174 Revised Economic Assumption not available for execution
- 1386 SBIR/STTR decrements
- Total 62095

Project D688

Page 9 of 14 Pages

Exhibit R-2 (PE 0604768A)

894

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604768A Brilliant Anti-Armor (BAT) Submunition

PROJECT

D688

FY 1997 Planned Program:

- | | | |
|-------|-------|---|
| • | 74832 | Conduct CD Program including initiation of Block II/BAT Integration Activities. |
| • | 450 | Conduct Sled Tests (OGA) |
| • | 2027 | Prepare for Conduct of PPT Test Program (OGA) |
| • | 250 | Studies, development, and validation of future improvement programs |
| Total | 77559 | |

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

Change Summary Explanation: FY 1996 funding adjustment due to Revised Economic Assumptions (-628).

FY 1997 funding adjustment due to Economic Assumptions/Improved Management Savings (-357).

C. Other Program Funding Summary

Missile Procurement, Army

CA 6105 ATACMS BLK II

D. Schedule Profile

Static Test

Sled Test

CDR

DA IPR

PDR

***Milestone Completed**

Project D688

Page 10 of 14 Pages

895

UNCLASSIFIED

Exhibit R-2 (PE 0604768A)

To	Total
<u>Complete</u>	<u>Cost</u>
830130	1100825

<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
				61341	82567	126787

	FY 1995	FY 1996	FY 1997
1	2	4	1
2	3	3	2
3			3
4			4

X

*X

DATE **March 1996**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
5 - Engineering and Manufacturing Development	0604768A Brilliant Anti-Armor (BAT) Submunition	D688

	FY 1995	FY 1996	FY 1997
A. Project Cost Breakdown			
Contractor Engr Support	7405	53592	62438
Development Test & Eval	67	1177	3073
Program Management Spt	1223	3503	6971
Program Management Personnel	1060	3823	5077
Total	9755	62095	77559

B. Budget Acquisition History

Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Loral Vought	SS/CPFF	JULY 95		197808		7405	53592	62438	74373	197808
In-House Support	PO	OCT			1060		3823	5077	17526	27486
Support and Management Organizations										
SETA & Program	SS/CPFF	OCT			1223		3503	6971	6183	17880
Mgmt Spt										
Test and Evaluation Organizations										
Range Support	PO	OCT					817	2477	20617	23911
Other Test	PO	OCT			67		360	596	9841	10864
Activities										

Subtotal Product Development	8465	57415	67515	91899	225294
Subtotal Support and Management	1223	3503	6971	6183	17880
Subtotal Test and Evaluation	67	1177	3073	30458	34775
Total Project	9755	62095	77559	128540	277949

Exhibit R-3 (PE 0604768A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604768A Brilliant Anti-Armor (BAT) Submunition								D688	
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D2NT BAT OPERATIONAL TEST		0	291	5	223	1079	4757	0	—	6355	
<p>A. Mission Description and Budget Item Justification: Project D2NT-OPTEC: Project D2NT finances the direct costs of planning and conducting operational testing and evaluation of the BAT submunition by the Operational Test and Evaluation Command (OPTEC). The BAT submunition is an Acquisition Category (ACAT) I system with a dedicated Initial Operational Test and Evaluation in FY 1998 in support of a Low Rate Initial Production (LRIP) decision. Operational testing is conducted under conditions, as similar as possible, to those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides the Army leadership with an independent test and evaluation of both the effectiveness and suitability of the system. Project D2NT is not a new start. It is restructured from PE 0605712, Support of Operational Testing, Project D001, OPTEC Initial Operational Test and Evaluation (IOTE).</p> <p>Acquisition Strategy: Not applicable.</p> <p>FY 1995 Accomplishments: No planned program.</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 284 IOTE planning and preparation • 1 Revised Economic Assumption not available for execution • 6 SBIR/STTR decrements Total 291 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 5 IOTE planning and preparation Total 5 											

Project D688

Page 12 of 14 Pages

Exhibit R-2 (PE 0604768A)

897

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET I		JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			
5 - Engineering		0604768A Brilliant Anti-Armor (BAT) Submunition		March 1996	D686
Manufacturing Development					
B. Project Change Summary:		FY 1995	FY 1996	FY 1997	
Previous President's Budget			299	1791	
Appropriated Amount (FY 1995)					
Adjustment to FY 1995					
Appropriated Amount (FY 1996)			294		
Adjustment to FY 1996			-3		
Adjustments to Budget Year (FY 1997) since				-1786	
FY 1996 President's Budget					
Current President's Budget Submit			291	5	
Change Summary Explanation: FY 1996: Revised Economic Assumptions (-3). FY 1997: Funding not required in FY 97 (-1786).					
C. Other Program Funding Summary: There are no other related RDT&E or other appropriation efforts.					
D. Schedule Profile		FY 1995	FY 1996	FY 1997	
1	2	3	4	1	2
				3	4
Conduct IOTE Activities			X*	X	
*Milestone completed					

Project D686

Page 13 of 14 Pages

Exhibit R-2 (PE 0604768A)

898

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604768A Brilliant Anti-Armor (BAT) Submunition

D686

A. Project Cost Breakdown

Operational Test and Evaluation

Total

FY 1995

FY 1996

FY 1997

291

5

291

5

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Government

Performing

Activity

Method/Type

or Funding

Vehicle

Award or

Obligation

Date

Performing

Activity

EAC

Project

Office

EAC

Total

Prior to

FY 1995

FY 1996

FY 1997

Budget to

Complete

Total

Program

Project D686

Page 14 of 14 Pages

Exhibit R-3 (PE 0604768A)

899

UNCLASSIFIED

UNCLASSIFIED

RD BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	
BUDGET ACTIVITY		PE NUMBER AND TITLE	
5 - Engineering and Manufacturing Development		0604770A Joint Surveillance/Target Attack Radar System	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate
Total Program Element (PE) Cost		37789	27480
D202 Army Joint STARS (TIARA)		34482	25747
D2CT JSTARS Operational Test (TIARA)		3307	1733
		FY 1997 Estimate	FY 1998 Estimate
		9857	7202
		FY 1999 Estimate	FY 2000 Estimate
		6068	4797
		FY 2001 Estimate	
		14238	
		Continuing	Continuing
		Continuing	Continuing
		0	0
		5040	

Mission Description and Budget Item Justification: This is a Tactical Intelligence and Related Activities (TIARA) program. US Forces have an urgent need for a wide-area surveillance and target attack radar system capable of continuous coverage out to a depth in excess of 100km beyond their Forward Line of Troops. Commanders must have the capability to detect, locate, classify and track moving and stationary targets for situation assessment to avoid surprise and attack targets out to the range of existing and developing weapons. The Joint Surveillance and Target Attack Radar System (JSTARS) provides battle management and targeting of enemy units at critical times and places so commanders can employ their organic forces and firepower in support of deep, close and rear operations. The joint Army/Air Force program objective is to develop a radar, datalink, ground station, and airframe that will provide the capability to locate, track and classify tracked and wheeled vehicles beyond ground line-of-sight during the day and night and under most weather conditions. Radar data is distributed to ground station modules via a secure surveillance and control data link. The Army will develop the ground components of the JSTARS under this PE, project D202. Also included in this PE is project D2CT with FY 95 and FY 96 funding for the Multi-service Operational Test and Evaluation (MOTET). The projects in this program element support development efforts in the Engineering and Manufacturing development phases of the Acquisition Strategy and are more correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604770A Joint Surveillance/Target Attack Radar

D202

System

GOST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D202 Army Joint STARS (TIARA)	34482	25747	9857	7202	6068	4797	14238	Continuing	Continuing

A. Mission Description and Justification: The Army will develop the ground components of the JSTARS under this PE/Project. The Ground Station Module (GSM) is being developed in a Block approach. Block I GSMs utilize the same prime mission equipment and will be developed and deployed on different platforms. The Block I Medium GSM (MGSM) is housed in a standard S280 shelter and mounted on a 5 Ton Truck. The rapidly deployable Block I Light GSM (LGSM) is housed in a Standard Integrated Command Post Shelter (SICPS) and mounted on a High Mobility Multi Purpose Wheeled Vehicle (HMMWV). A Block I Heavy GSM (HGS) prototype was also assembled. This variant integrated the GSM prime mission equipment into a Command and Control Vehicle (C2V) (a Bradley variant). Also included in this project is the development of the Block II GSM now called the Common Ground Station (CGS). The CGS will integrate signal, imagery, and other intelligence processing into a single ground station, resulting in enhanced battle management as well as significant cost savings. These enhancements are being implemented in a phased approach. Significant enhancements include: integration of Secondary Imagery Dissemination, spare full design/test of the tracked vehicle (heavy) variant, and integration/interface with other sensor systems. This project also includes FY 95 funding for interoperability/system performance assessments between the JSTARS Ground Stations and various allied sensors, as part of the NATO Alliance Ground Surveillance (NAGS) Program. A NAGS Project Office has been established to assess the various alternatives and select the final airborne and ground components. In FY 96, a new PE 1001018A was established to continue the NATO effort.

Acquisition Strategy: In December 1995, the JSTARS Ground Station Program awarded an eight year (basic plus seven (7) one year options) production contract to acquire the balance of ground stations required to meet Army needs. The first two years of the contract are Low Rate Initial Production (LRIP) with the first deliveries participating in a November 19 97 Operational Test. This test will support the Milestone three decision scheduled for May 1998. The contract also includes provisions for the design, development and test of various Pre - Planned Product Improvements (P3Is). Following P3I prove out, the modifications are folded into the Production contract via fixed price contract revisions.

FY 1995 Accomplishments:

•	306	Obtained Block I Light LRIP Decision
•	4313	Completed Data Link Mast Head Redesign
•	4866	Released CGS Solicitation
•	19485	Continued LGSM EMD Program
•	4012	Completed LGSM Software Stress Testing
•	1500	Initiated NATO Alliance Ground Surveillance Support
Total	34482	

Project D202

Page 2 of 10 Pages

Exhibit R-2 (PE 0604770A)

901

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

5 -Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604770A Joint Surveillance/Target Attack Radar
System

PROJECT

D202

FY 1996 Planned Program:

- 1834 Complete LGSM EMD Program
- 12559 Initiate Phase I CGS Design/System Enhancements
- 1220 Conduct CGS Phase I Critical Design Review (CDR)
- 9500 * Continue NATO Alliance Ground Surveillance Support
- 561 SBIR/STTR reduction not available for execution
- 73 Revised Economic Assumption not available for execution
- Total 25747

FY 1997 Planned Program:

- 7282 Complete CGS Phase I Integration
- 575 Complete CGS Phase I Technical/User Assessment
- 2000 Continue NATO Alliance Ground Surveillance Support
- Total 9857

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to BY (FY 1997) since FY 1996 Presidents

Budget

Current President Budget Submit

FY 1995	FY 1996	FY 1997
33723	16990	7884
33032		
1450	26007	
	-260	1973
	25747	9857

Change Summary Explanation:

Funding: FY 95 reduction for federally funded research development center rescission (-50)

FY 95 reprogramming into project for NAGS (+1500)

FY 96 Revised Economic Assumption (-260)

*FY 96 OSD moved funds to PE 10108A

FY97 Revised Inflation Rates (-327)

FY97 Reprogramming into Project for NAGS (+2300)

Project D202

Page 3 of 10 Pages

Exhibit R-2 (PE 0604770A)

902

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604770A Joint Surveillance/Target Attack Radar System

D202

	FY 1995	FY 1996	FY 1997
A. Project Cost Breakdown			
Primary Hardware Development	19741	9681	1180
Software Development	5212	7251	1164
Integrated Logistics Support	388	265	270
Developmental/Operational Test and Evaluation	783	650	800
Contractor Engineering Support	4530	4272	3921
Government Engineering Support	564	435	360
Program Management Support	1451	885	915
Program Management Personnel	1813	1674	1247
Revised economic assumption not available for execution		73	
SBIR/STTR reduction not available for execution		561	
Total	34482	25747	9857

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
Motorola (92-C-L001)	SS/CPFF	May 92	99572	99572	81312	17359	901	0	0	99572
Motorola (91-C-L006)	SS/CPFF	Sep 91	10780	11150	11150	0	0	0	0	11150
Motorola (93-C-K257)	SS/CPFF	Sep 93	9280	9280	4750	4530	0	0	0	9280
Motorola (96-C-S201)	SS/CPFF	Nov 95	10717	10911	0	0	3350	4248	3313	10911
Motorola (96-C-S204)	C/CFP	Dec 95	13102	13102	0	0	10238	2244	620	13102

Project D202

Page 5 of 10 Pages

Exhibit R-3 (PE 0604770A)

904

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604770A Joint Surveillance/Target Attack Radar

D202

System

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Motorola (95-C-S205)	SS/CPFF	Aug 95	N/A	1500	0	1500	5701	0	0	7201
Grumman (90-C-0197)	SS/CPFF	Feb 92	8287	7156	4000	2000	1156	0	0	7156
E-Systems (88-C-0080)	SS/FPF		2700	2700	0	2700	0	0	0	2700
Cubic (93-C-0166)	SS/FPI	Apr 93	2614	2242	1374	862	6	0	0	2242
Support and Management Organizations										
CECOM	MIPR					1060	592	495		
Proj Management						1759	1374	1047		
Misc	MIPR					1629	845	723		
Test and Evaluation Organizations										
Various	MIPR					783	650	800		
Government Furnished Property										
Contract										
Item	Method/Type	Award or	Delivery	Total		Budget to		Total		
Description	or Funding	Obligation	Date	Prior to	FY 1995	FY 1995	FY 1996	FY 1997	Complete	Program
Product Development Property	Vehicle	Date								
Various	Reqn			300		300	300	300	Cont	Cont
Support and Management Property: N/A										
Test and Evaluation Property: N/A										

Project D202

Page 6 of 10 Pages

Exhibit R-3 (PE 0604770A)

905

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						
BUDGET ACTIVITY	PE NUMBER AND TITLE			DATE	PROJECT	
	0604770A Joint Surveillance/Target Attack Radar			March 1996	D202	
5 - Engineering and Manufacturing Development	System					
	Total Prior to <u>FY 1995</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	Budget to <u>Complete</u>	Total <u>Program</u>
Subtotal Funds Not Available for Execution:			634			
Subtotal Product Development	102886	29251	21652	6792	Cont	Cont
Subtotal Support and Management		4448	2811	2265	Cont	Cont
Subtotal Test and Evaluation		783	650	800	Cont	Cont
Total Project		34482	25747	9857	Cont	Cont

Exhibit R-3 (PE 0604770A)
 Page 7 of 10 Pages
 Project D202

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604770A Joint Surveillance/Target Attack Radar

D2CT

System

		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D2CT	JSTARS Operational Test (TIARA)	3307	1733	0	0	0	0	0	0	5040

A. Mission Description and Budget Item Justification - D2CT provides for the Army's costs associated with the Multi-Service Operational Test and Evaluation (MOTE). All MOTe activities will be completed by 2Q96. This Joint Service Initial Operational Test and Evaluation (IOT&E) will support both the US Army and US Air Force for the Joint STARS Full Scale Production Decisions. (US Air Force in FY 96 and US Army in FY98)

Acquisition Strategy: No applicable

FY 1995 Accomplishments:

- 2391 Conducted MOTe Pre Test Planning and Training
- 916 Developed Instrumentation of Test Hardware, Simulators and Facility
- Total 3307

FY 1996 Planned Program:

- 789 Conduct MOTe
- 900 Complete Test Analysis and Reports
- 39 SBIR/STTR Reduction not available for execution
- 5 Revised economic assumption not available for execution
- Total 1733

FY 1997 Planned Program: Not Funded in FY97

B. Project Change Summary

Previous President's Budget (FY 1996)
 Appropriated Amount (FY 1995)
 Adjustments to FY 1995
 Appropriated Amount (FY 1996)
 Adjustment to (FY 1996)
 Current Budget-Estimate Submission

FY 1995	FY 1996	FY 1997
5932	1781	0
5807		
-2500		
	1750	0
	-17	
3307	1733	0

Project D2CT

Page 8 of 10 Pages

Exhibit R-2 (PE 0604770A)

907

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996						
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT							
5 - Engineering and Manufacturing Development	0604770A Joint Surveillance/Target Attack Radar System	D2CT							
<p>Change Summary Explanation:</p> <p>Funding: FY 95 Reprogramming due to MOTE completion delay from Nov 95 to Mar 96 (-2500)</p> <p>FY 96 Revised Economic Assumption (-17)</p> <p>Technical: The MOT&E schedule has been adjusted to permit completion during Operation Joint Endeavor participation.</p>									
C. Other Program Funding Summary									
	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
101018A NATO Joint STARS *	0	9500	0	0	0	0	0		
BA1080 Joint STARS Army TIARA Funding	55239	80376	85428	87659	76058	104396	105486		
MA9724	3063								
BS9724		3659	8770	5748	11222	10782	6979		
* OSD moved NATO funds to PE 101018A									
D. Schedule Profile									
	FY 1995	FY 1996		FY 1997					
1	2 3	4	1	2	3	4	1	2	3 4
	X*								
MOTE Pre Test Planning and Training									
MOTE									
Prepare MOTE Report				X					
* Army will submit an internal reprogramming to move funds into newly established for NATO.									

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604770A Joint Surveillance/Target Attack Radar

D2CT

System

A. Project Cost Breakdown

Operational Test and Evaluation
 Revised economic assumption not available for execution
 SBIR/STTR reduction not available for execution
 Total

FY 1995	FY 1996	FY 1997
3307	1689	0
	5	
	39	
3307	1733	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government
 Performing Activity
 Method/Type or Funding Vehicle
 Award or Obligation Date
 Performing Activity EAC

Project Office EAC
 Total Prior to FY 1995

FY 1995 FY 1996 FY 1997
 Budget to Complete
 Total Program

Product Development Organizations: N/A

Support and Management Organizations

Test and Evaluation Organizations

OPTEC MIPR Dec 94

0 3307 1689 0 4996

Government Furnished Property: N/A

Subtotal Funds not Available for Execution

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

44
 3307 1689 44
 3307 1733
 4996
 5040

Project D2CT

Page 10 of 10 Pages

Exhibit R-3 (PE 0604770A)

909

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604778A Positioning Systems Development
(Space)

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	3336	448	437	436	424	479	476	0	19038
D163 Modular Azimuth and Positioning System (MAPS) Hybrid Product Improvement Program (PIP)	2880	0	0	0	0	0	0	0	15415
D168 NAVSTAR Global Positioning System (GPS) Equipment	456	448	437	436	424	479	476	0	3623

Mission Description and Budget Item Justification: Project D163 provides for Engineering and Manufacturing Development (EMD) of a Hybrid Modular Azimuth and Positioning System (MAPS) into one host system, the Paladin (M109A6 155mm Self-Propelled Howitzer). The MAPS will be integrated with a Global Positioning System (GPS) receiver to provide rapid initialization and frequent updates of the inertial positioning and orientation system without need of a local survey control and will limit inertial Position/Navigation (POS/NAV) errors. Project D168 provides for Army participation in the research and development phases of Army weapon systems requiring POS/NAV capabilities. It provides for the engineering development of several alternatives for integration of GPS receivers into selected systems. These alternatives include, but are not limited to, Embedded/Integrated GPS, Advanced GPS Receivers (AGR), Tactical GPS Anti-Jam Technology (TGAT) and Differential GPS. The projects in this program element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604778A Positioning Systems Development

D163

(Space)

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D163 Modular Azimuth and Positioning System (MAPS) Hybrid Product Improvement Program (PIP)	2880	0	0	0	0	0	0	0	15415

A. Mission Description and Justification: Project D163 -MAPS Hybrid PIP: Maps Hybrid PIP is a product improvement of MAPS. The project is intended to improve the autonomous capability of Paladin and other potential users by decreasing their reliance on externally provided survey control points and thus increasing system effectiveness and survivability on the battlefield.

FY 1995 Accomplishments:

- 1236 Completed Test and Evaluation
- 670 Completed Production and Field Retrofit Planning
- 974 Completed requirements towards possible type classification of MAPS Hybrid Unit
- Total 2880

FY 1996 Planned Program: No planned program.

FY 1997 Planned Program: No planned program.

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 Presidents Budget

Current President's Budget Submit

FY 1995 FY 1996 FY 1997

3332

3265

-385

2880

Change Summary Explanation:

Funding: Reprogramming action between PEO FAS and ASM, 385K

Project D163

Page 2 of 7 Pages

Exhibit R-2 (PE 0604778A)

911

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604778A Positioning Systems Development (Space)

PROJECT

D163

C. Other Program Funding Summary: There are no other related RDTE or other Appropriation efforts.

D. Schedule Profile:

	FY 1995		FY 1996		FY 1997
1	2	3	4	1	2
			X*	4	3
					4

Quality Test

*** Milestone Complete**

Project D163

Page 3 of 7 Pages

912

Exhibit R-2 (PE 0604778A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604778A Positioning Systems Development

(Space)

PROJECT

D163

A. Project Cost Breakdown

Contractor Engineering Support

Government Engineering Support

Operational (Qual) Test & Evaluation

Total

FY 1995

1390

1100

390

2880

FY 1996

FY 1997

B. Budget Acquisition History and Planning Information: N/A

Project D163

Page 4 of 7 Pages

Exhibit R-3 (PE 0604778A)

913

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996							
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT					
5 - Engineering and Manufacturing Development		0604778A Positioning Systems Development (Space)			D168					
		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D168	NAVSTAR Global Positioning System (GPS) Equipment	456	448	437	436	424	479	476	0	3623
<p>A. Mission Description and Justification: Project D168- (NAVSTAR GPS) GPS sets were used in Operation Desert Storm and proved to be a significant force multiplier. GPS assures greater command and control and significantly reduces the likelihood of fratricide. New uses for GPS are being developed. These new uses require an analysis of the overall host vehicle operational POS/NAV system to support development of alternative GPS applications</p> <p>Acquisition Strategy: Perform studies and analyses of host vehicles to support development of alternative GPS applications.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 155 Continued development/testing of GPS anti-jam differential and embedded technologies 194 Incorporated new GPS technology into next generation user equipment through insertion of P3I 107 Tested GPS equipment Total 456 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 163 Procurement and testing of items in marketplace to remain current with NDI alternatives (to include embedding). 161 Advanced GPS receiver framework conceptualization (non-hardware work) to meet evolving user requirements. 113 Air receiver exploration for MAGR follow-on replacement. 1 Revised Economic Assumption. Not available for execution. 10 SBIR/STTR Total 448 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 122 Improved accuracy and time to fix studies for follow-on equipment requirements. 150 Test program for NDI aviation GPS receiver (MAGR follow-on/replacement). 165 Improved survivability of GPS capability (renewed anti-jam/anti-spoof and other threats response). Total 437 										

Project D168

Page 5 of 7 Pages

Exhibit R-2 (PE 0604778A)

914

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604778A Positioning Systems Development

D168

(Space)

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

465

456

FY 1996

460

FY 1997

449

452

-4

-12

437

Summary Change Explanation:

Funding: FY 96 (-4) the portion of this program that has been proposed for rescission.

FY97 (-12) decrease due to revised inflation rates.

C. Other Program Funding Summary

K47800, Other Procurement, Army, NAVSTAR

GPS

FY 1995

32104

FY 1996

48440

FY 1997

26288

FY 1998

17826

FY 1999

8063

FY 2000

7943

FY 2001

6690

Total

To

Compl

TBD

Total

Cost

TBD

D. Schedule Profile: N/A

Project D168

Page 6 of 7 Pages

Exhibit R-2 (PE 0604778A)

915

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			D168
5 - Engineering and Manufacturing Development	0604778A Positioning Systems Development (Space)			
A. <u>Project Cost Breakdown</u>	FY 1995	FY 1996	FY 1997	
Developmental Test and Evaluation	91	0	150	
Government Engineering Support	194	279	162	
Contractor Engineering Support	171	169	125	
Total	456	448	437	
B. <u>Budget Acquisition History and Planning Information:</u> N/A				

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604780A Combined Arms Tactical Trainer (CATT)

D571

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D571 Close Combat Tactical Trainer	50293	57742	26713	3033	3095	3082	3058	0	237197

A: Mission Description and Budget Item Justification: Project D571 - Close Combat Tactical Trainer: The Combined Arms Tactical Trainer (CATT) is a family of combined arms simulation systems designed to support the Army's simulation-based Combined Arms Training Strategy. The specific systems that comprise CATT include Close Combat Tactical Trainer (CCTT), Aviation Combined Arms Tactical Trainer (AVCATT), Engineer Combined Arms Tactical Trainer (ENCATT), Fire Support Combined Arms Tactical Trainer (FSCATT) and Air Defense Combined Arms Tactical Trainer (ADCATT). CATT enables units, from crew to the Battalion Task Force level, to conduct a wide variety of combat tasks on a realistic, interactive synthetic battlefield. CATT's combination of manned simulators and staff officer workstations enables units to train as a combined arms team in a cost effective manner. CATT reinforces the successes and corrects the shortcomings of the Simulator Network (SIMNET) and Aviation Network (AIRNET) demonstration programs executed by the Advanced Research Projects Agency (ARPA). By practicing skills in CATT, units are able to make more effective use of scarce and costly live fire and maneuver exercises as well as train tasks deemed too hazardous to conduct in the field. Fielded in both fixed site and mobile/transportable versions, CATT enables both Active and Reserve component units to prepare for real world contingency missions. Units taking their CATT systems with them on operational deployments, such as peacekeeping missions, are able to sustain essential warfighting skills when not at their home station. By being able to process a wide array of terrain data bases and modify the behavior of the computer generated opposing forces, CATT offers a virtually unlimited array of training options to support the Army's many regional contingency missions. The combination of tough field and live fire training and realistic simulation training in CATT is the catalyst to prepare soldiers and their leaders for the uncertainties they will face in an unpredictable world. The projects in this program element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

This project provides for engineering and manufacturing development (EMD) and pre-planned product improvements for the Close Combat Tactical Trainer (CCTT) which will enhance readiness of both active and reserve component forces. The program will develop a networked system of interactive computer driven simulators, emulators and semi-automated forces that replicate combat vehicles and weapon systems, combat support systems, combat service support systems, and command and control systems to create a fully integrated real-time collective task training environment. This trainer will allow soldiers to practice, repetitively, techniques which, if performed on real equipment, would be too hazardous, time-consuming and expensive. These trainers enhance realism and allow soldiers and units to learn tactical combat lessons on maneuver, command and control, and improved teamwork for increased survivability.

Acquisition Strategy: Competitive cost plus award fee contract for EMD phase. Competitive procurement against performance specifications.

FY 1995 Accomplishments:

- 40531 Conducted and completed spiral development of hardware/software builds 3 through 7. Build 7 integration and testing is completed in FY 96.
- 6292 Supported data collection, analysis and dissemination; performed software independent verification and validation; developed life cycle estimates and provided program office support
- 3470 Provided government program management, engineering, technical and contract support
- Total 50293

Project D571

Page 1 of 5 Pages

Exhibit R-2 (PE 0604780A)

917

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		
5 - Engineering and Manufacturing Development		0604780A Combined Arms Tactical Trainer (CATT)	March 1996 D571
FY 1996 Planned Program:			
• 47655 Complete software/hardware build 7. Produce and deliver a fixed company team site (38 modules) and 2 mobile platoon sets (11 modules); perform software/hardware physical configuration audit; conduct Preproduction Qualification Test (PPQT) for both fixed and mobile systems and prepare for fixed and mobile Initial Operational Test and Evaluation (IOT&E)			
• 6327 Maintain support services to the program office			
• 2310 Provide government program management, engineering, technical and contract support			
• 1450 Revised Economic Assumption not available for execution and SBIR/STTR			
Total	57742		
FY 1997 Planned Program:			
• 20750 Complete semi-automated forces improvements, conduct and support development testing and IOT&E, correct deficiencies from testing, complete documentation and audit trail, and prepare for pre-planned product improvements			
• 3853 Maintain support services to the program office			
• 2110 Provide government program management, engineering, technical and contract support			
Total	26713		
B. Project Change Summary:			
Previous President's Budget (FY 1995)	FY 1995	FY 1996	FY 1997
Appropriated Amount (FY 1995)	51375	59475	20669
Adjustment to FY 1995	50296		
	- 3	58327	
Appropriated Amount (FY 1996)		-585	6044
Adjustment to FY 1996			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget		57742	26713
Current President's Budget Submit	50293		
Change Summary Explanation:			
Funding: FY 1997 - Increase of 6044 to fully fund the program with no impact to the Acquisition Program Baseline.			

Project D571

Page 2 of 5 Pages

Exhibit R-2 (PE 0604780A)

918

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604780A Combined Arms Tactical Trainer (CATT)

D571

C. Other Program Funding Summary

OPA3: Appropriation

NA0170 SIMNET/CCTT

Military Construction, A Appropriation
Operation and Maintenance, A Appropriation

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
31808	29699	78400	94173	104029	25487	14787	0	385740

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
0	10500	11900	12800	0	0	0	0	35200
0	415	4800	6466	11194	11037	10757	Cont'd	Cont'd

D. Schedule Profile

FY 1995

FY 1996

FY 1997

	1	2	3	4	1	2	3	4	1	2	3	4
Spiral Build 3												
Spiral Build 4												
Spiral Build 5				X*								
Spiral Build 6				X*								
Spiral Build 7												
Software PDR			X*									
Hardware CDR												
Software CDR			X*									
FQT												
QS Decision												
PPQT Fixed System												
IOT&E Fixed System												
PPQT/IOT&E Mobile System												

Project D571

Page 3 of 5 Pages

Exhibit R-2 (PE 0604780A)

919

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)									
BUDGET ACTIVITY		PE NUMBER AND TITLE					DATE	PROJECT	
5 - Engineering and Manufacturing Development		0604780A Combined Arms Tactical Trainer (CATT)					March 1996	D571	
		FY 1995	FY 1996	FY 1997				Budget to Complete	Total Program
A. Project Cost Breakdown									
LORAL Development		27599	34617	17004					
LORAL Program Management/System Engineering		12932	13038	3746					
Program Office/Technical Support		3470	2310	2110					
Government Agency Support		2367	3590	2280					
Support Contracts		3925	2737	1573					
Revised Economic Assessment not available for execution			161						
SBIR/STTR			1289						
Total		50293	57742	26713					
B. Budget Acquisition History and Planning Information									
Performing Organizations									
Contractor or Government	Contract Method/Type	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	
Performing Activity	Vehicle	Date	EAC	EAC	FY 1995	FY 1995	FY 1996	FY 1997	
Product Development Organizations									
Loral FSC	C-CPAF/T&M/FFP	Nov 92	185310	185310	72245	40531	47655	20750	0
Support and Management Organizations									
NAWC-TSD	MIPR	Dec 92	11566	11566	3673	3473	2310	2110	0
RCI	T&M	Feb 93	3687	3687	3687	0	0	0	0
CECOM	MIPR	Nov 93	7893	7893	2056	1294	2490	2053	0
MICOM	MIPR	Jan 94	1020	1020	1020	0	0	0	0
Sherikon	T&M	Oct 94	4400	4400	0	1800	1800	800	0
Miscellaneous	Various	Various	25167	25167	7473	3195	2037	1000	12295
Revised Economic Assessment							161		161
SBIR/STTR							1289		1289
Test and Evaluation Organizations: None									
Government Turnished Property: None									
Project D571									Exhibit R-3 (PE 0604780A)

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development		0604780A Combined Arms Tactical Trainer (CATT)		D571		
		Total			Budget to	Total
		Prior to			Complete	Program
		FY 1995	FY 1995	FY 1996	FY 1997	
		72245	40531	47655	20750	181181
		17909	9762	10087	5963	56016
		90154	50293	57742	26713	237197
	Subtotal Product Development					
	Subtotal Support and Management					
	Subtotal Test and Evaluation					
	Total Project					

Project D571

Page 5 of 5 Pages

Exhibit R-3 (PE 0604780A)

Project D571

Page 5 of 5 Pages

921

Exhibit R-3 (PE 0604780A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604801A Aviation - Engineering Development								DC45	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DC45 Aircrew Integrated Systems (ACIS)		4614	5002	5518	7596	6910	2420	2403	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: DC45 Aircrew Integrated Systems (ACIS) formally Aviation Life Support Equipment (ALSE) - Engineering Manufacturing Development This project provides engineering and manufacturing development for those systems and items of equipment which are unique and necessary for the sustainment and enhanced survivability of Army aircrews and passengers on the future integrated battlefield and during related training activities. EMD programs will focus on air vehicle integration, airworthiness qualification and user evaluation of multiple technologies to improve aircrew mission performance, aircrew comfort, aircrew and aircrew station interface, safety, and survivability. These programs include: advanced laser protection against emerging new threat systems; product improvements to existing helmets to improve performance and increase commonality; microclimatic cooling to improve aircrew performance and endurance in harsh environments and while encumbered with NBC protective equipment; development and adaptation of automotive airbag technology to the APACHE aircraft to improve crash protection and enhanced aircrew survivability; and follow-on air vehicle integration and test of Air Warrior program effort to enhance and maximize aircrew performance in force modernized aircraft. Maximum advantage will be taken of simulation to reduce program technical risk through early user evaluation and to reduce program design and test cost and schedules. Both joint and service independent efforts will be pursued under the scope of this project. The Project in this Program Element supports research efforts in the Engineering and Manufacturing Development Phase of the Acquisition Strategy and is correctly placed in Budget Activity 5.</p> <p>Acquisition Strategy: Technical data packages are being procured for the Apache Cockpit Air Bag System (CABS) and Aircrew Microclimatic Cooling System B-kits. B-kits will be competed with the A-kit and Government furnished B-kit installation performed by the aircraft manufacturer. Pre-Planned Product Improvement of the helmet is awarded, as required, to the helmet developer, Gentex Corp. Performance specifications for the joint service advanced laser program are being developed and will be used for production competition. An Air Warrior competitive integration contract will be awarded after Milestone I/II approval.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 2017 Initiated Cockpit Air Bag System (CABS) EMD for the AH-64 Apache 1000 Continued Aircrew Integrated Helmet System (AIHS) P¹ efforts 672 Continued Aircrew Microclimatic Conditioning System (AMCS) test and evaluation 925 Initiated EMD for Advanced Laser Eye Protection (LEP) effort (Joint Service) Total 4614 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 1952 Continue CABS EMD for AH-64 Apache 559 Initiate program planning for the Joint Cockpit Air Bags System (JCABS) EMD Program (Joint Service) 1011 Continue AIHS P¹ efforts in EMD 											

Project DC45

Page 1 of 5 Pages

Exhibit R-2 (PE 0604801A)

922

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					
BUDGET ACTIVITY	PE NUMBER AND TITLE			DATE	PROJECT
5 - Engineering and Manufacturing Development	0604801A Aviation - Engineering Development			March 1996	DC45
FY 1996 Planned Program: (continued)					
• 1288 Continue EMD for Advanced Laser Eye Protection (LEP) effort (Joint Service)					
• 75 Complete AMCS Operational Test/Milestone III IPR					
• 15 Revised Economic Assumptions amount not available for execution					
• 102 FY 96 SBIR/STTR reductions					
Total					
FY 1997 Planned Program:					
• 1800 Complete EMD qualification test and evaluation of CABS for the AH-64 Apache					
• 2080 Conduct Milestone II IPR/Initiate EMD for JCABS (Joint Service)					
• 638 Complete AIHS P ³ I testing					
• 1000 Complete EMD for the Advanced LEP (Joint Service)					
Total					
B. Project Change Summary					
Previous President's Budget (FY 1996)					
Appropriated Amount (FY 1995)					
Adjustments to FY 1995					
Appropriated Amount (FY 1996)					
Adjustments to FY 1996					
Adjustments to Budget Year (FY 1997) since					
FY 1996 President's Budget					
Current President's Budget Submit					
Change Summary Explanation:					
Funding: FY 96 reflects revised economic assumptions (-50)					
FY 97 reflects revised economic assumptions (-181) and reduced requirement (-1200)					
C. Other Program Funding Summary					
RDTE, A BA 4 PE 0603801A Project DB45,					
ACIS - AD					
Aircraft Procurement Army (APA) (ACIS) SSN					
AZ3110					
Project DC45					

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY					DATE				
5 - Engineering and Manufacturing Development					March 1996				
PE NUMBER AND TITLE					PROJECT				
0604801A Aviation - Engineering Development					DC45				
D. Schedule Profile	1	2	3	4	1	2	3	4	
AH-64 Apache CABS									
EMD Contract Award				X*					
Critical Design Review (CDR)									
Development Test (DT)					X				
Independent Assessment Report							X		
Functional Configuration Audit							X		
Aircrew Microclimate Conditioning									
System (AMCS)									
Technical Tests II				X*					
Complete Operational Test					X				
Milestone III IPR								X	
Advanced Laser Eye Protection (LEP)									
Initiate EMD Phase	X*								
Preliminary Design Review (PDR)					X				
Continue PDR									
Initiate Design Verification Testing						X			
Complete EMD phase								X	
Joint Cockpit Air Bag System (JCABS)									
Initiate EMD program planning									
Conduct Milestone II IPR					X				
Initiate EMD phase							X		
Critical Design Review (CDR)								X	
AIHS P'I									
Continue EMD efforts				X*					
Technical Testing									
Independent Assessment Report							X		
* Indicates milestone completed									

Project DC45

Page 3 of 5 Pages

Exhibit R-2 (PE 0604801A)

924

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604801A Aviation - Engineering Development

PROJECT DC45

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Product Development Organizations	2553	2536	3105
Support and Management Organizations	1493	2109	1848
Test and Evaluation Organizations	568	240	565
Revised Economic Assumptions/SBIR/STTR		117	
Total	4614	5002	5518

B. Budget Acquisition History and Planning Information:

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1997			Budget to Complete	Total Program
						FY 1995	FY 1996	FY 1997		
Product Development Organizations										
JCABS Simula										
Phoenix, AZ	SS-CPFF	Mar 1997	5400	5400	0		1400		4000	5400
AH-64 CABS Simula										
Phoenix, AZ	SS-CPFF	May 1994	3612	3612	550	1000	750	1312	0	3612
AMCS, MRI,										
Kansas City, Mo.	SS-CPFF	Mar 1994	7651	7651	7151	500			0	7651
Advanced LEP										
NAWC Warminster, PA	C-CPFF	July 1995	2981	2981	0	425	615	891	1050	2981
Miscellaneous	SS/C-CPFF	FY 95-97			9107	628	340	333	Cont	Cont
Support and Management Organizations										
Various Organizations	MIPR	Various			4981	1493	1848	2109	Cont	Cont
Revised Economic Assumptions/SBIR/STTR								117		
Test and Evaluation Organizations										
Government Agencies	MIPR				2421	568	565	240	Cont	Cont

Project DC45

Page 4 of 5 Pages

Exhibit R-3 (PE 0604801A)

925

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development	0604801A Aviation - Engineering Development				DC45
Government Furnished Property Not Applicable					
		FY 1995	FY 1996	FY 1997	
Total					
Prior to					
FY 1995		2553	2536	3105	Total
16808					Program
Subtotal Product Development		4981	2226	1848	Cont
Subtotal Support and Management		2421	240	565	Cont
Subtotal Test and Evaluation		24210	5002	5518	Cont
Total Project DC45					Cont

Project DC45

Page 5 of 5 Pages

Exhibit R-3 (PE 0604801A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604802A Weapons and Munitions - Engineering

Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	14006	17535	20468	10417	17346	9751	1895		
D134 Objective Individual Combat Weapon Engineering Development	0	0	0	0	0	1912	1895	Continuing	Continuing
D284 Multipurpose Individual Munition	0	11973	14108	9353	17346	7839	0	0	60619
D290 Bunker Defeat Munition	31	0	0	0	0	0	0	0	6229
D531 105mm Howitzer Ammunition Improvement	3044	3520	3076	0	0	0	0	0	20094
D613 Mortar Systems	10931	1556	0	0	0	0	0	0	21539
D712 Non-Lethal Programs	0	0	3284	1064	0	0	0	0	4348
DAS1 Small Arms Improvement	0	486	0	0	0	0	0	0	486

Mission Description and Budget Item Justification: Provides for engineering development of weapons and munitions systems. The Objective Individual Combat Weapon (OICW) will provide significant increase in overall combat effectiveness such as hit probability, range, lethality, man/machine interface, sustainability and logistics. The Multi-purpose Individual Munition (MPIM) provides the infantry with a fire-and-forget weapon capable of defeating enemy forces in buildings, bunkers and lightly armored vehicles. The Bunker Defeat Munition (BDM) is an interim solution to provide the individual soldier the ability to destroy field fortifications from a standoff position several years before the MPIM is ready. The howitzer ammunition effort supports development of ammunition for the M119A1 Howitzer. The mortar systems effort supports qualification of an Improved Mortar Ballistic Computer (IMBC) and type classification of personnel and materiel through development of non-lethal capabilities for multiple weapon systems/platforms. The Small arms improvement program provides funds to develop existing and emerging technology to enhance lethality, target acquisition, fire control, training effectiveness and /or reliability for small arms weapon systems. This project develops a universal mounting bracket for the MK19-3 Grenade Machine Gun. Projects within this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in budget activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604802A Weapons and Munitions - Engineering Development								D284	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D284	Multipurpose Individual Munition	0	11973	14108	9353	17346	7839	0	0	60619	
<p>A. Mission Description and Budget Item Justification: Provides for an Engineering Manufacturing Development (EMD) of a lightweight, shoulder fired, multiple purpose weapon. Provides the infantry with a fire and forget weapon capable of defeating enemy forces in buildings, bunkers, and lightly armored vehicles. The Multiple Purpose Individual Munition/Short Range Anti-tank weapon (MPIM/SRAW) is capable of being fired quickly from its carrying configuration and can be safely fired from an enclosure for the close battle. It will replace the current AT4 system which was designed to defeat only light armor. This system will have tremendously increased lethality over the AT4 and will be multiple target capable. System design will allow for growth, service life extension and technology insertion to support the U. S. Army mission of crisis response to regionally based threats. The Army and U. S. Marine Corps have initiated a memorandum of agreement for horizontal technology integration effort utilizing the USMC SRAW flight module/launcher as the carrier for the MPIM warhead.</p> <p>Acquisition Strategy: The MPIM/SRAW is a 51-month EMD program which will leverage off the USMC 42-month SRAW EMD contract awarded in June 1994 and the 18-month Army technology demonstration MPIM/SRAW contract awarded in Jan 1995. The MPIM/SRAW EMD contract will be awarded in June 1996. Funding for initial production facilitization (IPF) and long lead items (LLI) procurement begins in FY 1999 to facilitate maintaining an FY 01 First Unit Equipped (FUE). Low rate initial production (LRIP) will be awarded in FY 00. Full rate production will begin in FY 01.</p> <p>FY 1995 Accomplishments: No FY 1995 program</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 1957 Proceed with MPIM/SRAW EMD: develop program milestone II documentation; prepare request for proposal; award EMD contract • 319 Conduct system level trade studies • 2426 Finalize system level specifications for preliminary design review (PDR) • 6678 Procure flight module/launcher hardware for pre-production testing (PPT) • 291 Procure warhead components for PPT • 268 Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Research Program Reauthorization Act of 1992 • 34 Revised economic assumption- not available for execution Total 11973 											

Project D284

Page 2 of 24 Pages

Exhibit R-2 (PE 0604802A)

928

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604802A Weapons and Munitions - Engineering

D284

Development

FY 1997 Planned Program:

- 3597 Continue MPIM/SRAW EMD
- 519 Conduct PDR
- 1619 Conduct Early User Demonstration (EUD)
- 1198 Conduct PPT
- 3305 Procure common hardware for pre-production qualification testing (PPQT)
- 711 Procure warhead components for PPQT
- 3159 Finalize design for critical design review
- Total 14108

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995	FY 1996	FY 1997
0	12309	14607
0		
0		
	12093	
	-120	
		-499
0	11973	14108

Change Summary Explanation:

Funding -FY 1996: This program has been reduced for revised economic assumptions.

FY 1997: This program has been reduced for revised economic assumptions.

C. Other Program Funding Summary

PE 0603313A, Project D387

Missile Procurement, Army, SSN C09100

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
5458	4450	813	0	0	0	0	0	10721
0	0	0	0	12205	39171	46432	Cont	Cont

Project D284

Page 3 of 24 Pages

Exhibit R-2 (PE 0604802A)

929

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604802A Weapons and Munitions - Engineering

PROJECT

D284

Development

	FY 1995	FY 1996	FY 1997		FY 1995	FY 1996	FY 1997		FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
A. Project Cost Breakdown													
Primary hardware development	0	9714	10511										
Program management support	0	2209	2680										
Developmental Test and Evaluation	0	50	917										
Total	0	11973	14108										
B. Budget Acquisition History and Planning Information													
Performing Organizations													
Contractor or Contract													
Government Method/Type													
Performing or Funding													
Activity Vehicle													
Award or Obligation													
Date													
Performing Activity													
EAC													
Product Development Organizations													
LORAL SS/CPIF													
3Q96													
Aeronautic													
Support and Management Organizations													
PM CCAWS, RSA													
PO													
MICOM, RSA, AL													
PO													
MISC. PO													
Test and Evaluation Organizations													
TECOM, APG													
PO													
Government Furnished Property: None													
Subtotal Product Development													
Subtotal Support and Management													
Subtotal Test and Evaluation													
Total Project													

Project D284

Page 5 of 24 Pages

Exhibit R-3 (PE 0604802A)

931

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996																											
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT																												
5 - Engineering and Manufacturing Development		0604802A Weapons and Munitions - Engineering Development								D290																												
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost																												
D290	Bunker Defeat Munition	31	0	0	0	0	0	0	0	6229																												
<p>A. Mission Description and Budget Item Justification: This project provides for the development and type classification of a throwaway munition for neutralizing earth and timber field fortifications, and breaching masonry and reinforced concrete structures.</p> <p>Acquisition Strategy: BDM procurement will be achieved through a sole source fixed price contract with the developer.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 31 Conducted final technical test/operational program <p>Total 31</p> <p>FY 1996 Planned Program: No FY 1996 program</p> <p>FY 1997 Planned Program: No FY 1997 program</p> <p>B. Project Change Summary</p> <table> <tr> <td>Previous President's Budget (FY 1995)</td> <td>FY 1995</td> <td>FY 1996</td> <td>FY 1997</td> </tr> <tr> <td>Appropriated Amount (FY 1995)</td> <td>2607</td> <td>0</td> <td>0</td> </tr> <tr> <td>Adjustment to FY 1995</td> <td>2552</td> <td></td> <td></td> </tr> <tr> <td>Appropriated Amount (FY 1996)</td> <td>-2521</td> <td></td> <td></td> </tr> <tr> <td>Adjustment to FY 1996</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget</td> <td></td> <td></td> <td>0</td> </tr> <tr> <td>Current President's Budget Submit</td> <td>31</td> <td>0</td> <td>0</td> </tr> </table> <p>Change Summary Explanation- Funding: FY 1995 below threshold reprogramming (2521)</p>											Previous President's Budget (FY 1995)	FY 1995	FY 1996	FY 1997	Appropriated Amount (FY 1995)	2607	0	0	Adjustment to FY 1995	2552			Appropriated Amount (FY 1996)	-2521			Adjustment to FY 1996	0			Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			0	Current President's Budget Submit	31	0	0
Previous President's Budget (FY 1995)	FY 1995	FY 1996	FY 1997																																			
Appropriated Amount (FY 1995)	2607	0	0																																			
Adjustment to FY 1995	2552																																					
Appropriated Amount (FY 1996)	-2521																																					
Adjustment to FY 1996	0																																					
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			0																																			
Current President's Budget Submit	31	0	0																																			

Project D290

Page 6 of 24 Pages

Exhibit R-2 (PE 0604802A)

932

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE PROJECT 0604802A Weapons and Munitions - Engineering D290							
5 - Engineering and Manufacturing Development	Development							
C. Other Program Funding Summary:	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Total Cost
Procurement Ammunition, Army: Bunker Defeating Munition, SSN E88401	7046	14581	0	0	0	0	0	0 21627
D. Schedule Profile	FY 1995			FY 1996		FY 1997		
Complete validation test program	1 2 3	4	1	2 3	4 1	2 3	4	
Materiel release			X					

Project D290
Page 7 of 24 Pages
Exhibit R-2 (PE 0604802A)

933

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604802A Weapons and Munitions - Engineering Development

**PROJECT
D290**

A. Project Cost Breakdown									
Test and Evaluation		FY 1995		FY 1996		FY 1997			
Test and Evaluation		31		0		0			
Program management and engineering		0		0		0			
Total		31		0		0			
B. Budget Acquisition History and Planning Information									
Performing Organizations									
Contractor or Government	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Total Program
Product Development Organizations									
Talley Defense Sys	FP	Dec 94	3600	3600	0	0	0	0	3600
Support and Management Organizations									
ARDEC- Picatinny			1807	1807	0	0	0	0	1807
Test and Evaluation Organizations									
TECOM-APG;			822	822	791	31	0	0	822
YPG; RTTC									
Government Furnished Property: None									
Subtotal Product Development									
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project									

Project D290

Page 8 of 24 Pages

Exhibit R-3 (PE 0604802A)

934

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604802A Weapons and Munitions - Engineering Development

D531

	COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D531 105mm Howitzer Ammunition Improvement		3044	3520	3076	0	0	0	0	0	20094

A. Mission Description and Budget Item Justification: This project provides for the fielding of an extended range 105mm artillery projectile for the M119A1 Howitzer and development of self-destruct fuzing technology for munitions.

Acquisition Strategy: Initial low rate production of cartridge, artillery, 105mm Dual Purpose Improved Conventional Munition (DPICM), XM915, begins in FY 1997 and will be sole sourced to the developer under fixed price contracts. Full rate production begins in FY 1998 and will be achieved with competitively solicited fixed price contracts.

FY 1995 Accomplishments:

- 145 Increment to contract for containers and additional grenade fuzes
- 243 New machining operation added to grenade body process
- 181 Procurement of projectile bodies, expulsion system hardware, and grenade adapters
- 65 Self destruct fuze stacked grenade test and accelerated aging tests
- 50 XM80 performance testing
- 108 KDI self destruct fuze contract
- 616 Load, assembly and pack of 105mm DPICM hardware and self destruct fuzes at LSAAP
- 166 EMD testing at Yuma Proving Ground (YPG)
- 1470 Engineering evaluation of performance, expulsion system investigation, self destruct fuze investigation, and follow up on testing
- Total 3044

FY 1996 Planned Program:

- 716 Complete EMD testing at YPG
- 1150 KDI self destruct fuze contract
- 270 projectile metal parts contract
- 1296 Engineering evaluation of performance
- 78 Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Research Program Reauthorization Act of 1992
- 10 Revised economic assumption- not available for execution
- Total 3520

Project D531

Page 9 of 24 Pages

Exhibit R-2 (PE 0604802A)

935

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0604802A Weapons and Munitions - Engineering

D531

- **800 Load, assembly and pack (LAP) of cartridge for Development test and evaluation**

- | | | |
|-------|------|--|
| • | 800 | Load, assembly and pack (LAP) of cartridge for Development test and evaluation |
| • | 1100 | Conduct DT&E tests |
| • | 792 | Test and evaluation management |
| • | 384 | Complete Engineering Manufacture and Development (EMD) |
| Total | 3076 | |

FY 1995	FY 1996	FY 1997
---------	---------	---------

$$\frac{3619}{0}$$

3062

-18

3556

-36

3076

)
 -
)
)

3076

Funding: FY 1997 program funding to complete testing and to type classify the item.

<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Cost</u>
0	0	14185	19140	47533	47162	14247	142267
							<u>Compl</u>

<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Cost</u>
0	0	14185	19140	47533	47162	14247	142267
							<u>Compl</u>

FY 1997

FY 1997

Page 10 of 24 Pages

Exhibit R-2 (PE 0604802A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604802A Weapons and Munitions - Engineering

D531

Development

D. Schedule Profile

	FY 1995				FY 1996				FY 1997			
	1	2	3	4	1	2	3	4	1	2	3	4
XM80 performance testing			X*									
Complete EMD testing at YPG									X			
KDI self destruct fuze contract				X*								
Projectile metal parts contract						X						
Eng eval of perf; follow up on all testing										X		
Type Classification										X		

*Completed milestone

Project D531

Page 11 of 24 Pages

Exhibit R-2 (PE 0604802A)

937

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY					
5 - Engineering and Manufacturing Development				0604802A Weapons and Munitions - Engineering Development	D531
PE NUMBER AND TITLE					
A. Project Cost Breakdown					
Program engineering and management support	FY 1995	FY 1996	FY 1997		
Contract engineering support	1520	1384	792		
Test and evaluation support	1293	1420	0		
Total	231	716	2284		
	3044	3520	3076		
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Government	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total
Performing Activity				EAC	Prior to FY 1995
Product Development Organizations					
TACOM:ARDEC	ALLOT	OCT 92	5527	5527	3044
Chamberlain:	OPEN/CPIF	SEP 93	1100	1100	1200
SAAP, Scranton					
Amrom Corp.	OPEN/CPIF	SEP 93	590	590	615
KDI	OPEN/CPIF	SEP 93	3914	3914	3914
Olin	OPEN/FP	SEP 93	117	117	117
Norris Industries	OPEN/CPIF	SEP 93	371	371	371
Dayron Corp.	OPEN/CPIF	SEP 94	238	238	156
LSAAP	FP/ALLOT	JUL 94	1792	1792	372
Support and Management Organizations: None					
Test and Evaluation Organizations					
TECOM-YPG, AZ			3193	3193	497
Government Furnished Property: None					
				716	1484
					2863
					7005
					1514
					858
					5172
					117
					371
					238
					1788

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT	
5 - Engineering and Manufacturing Development	0604802A Weapons and Munitions - Engineering Development			D531	
	Total				
	Prior to				
	FY 1995	FY 1996	FY 1997	Budget to	Total
				Complete	Program
Subtotal Product Development	9789	2804	1592		17063
Subtotal Support and Management	0	0	0		0
Subtotal Test and Evaluation	497	716	1484		2863
Total Project	10286	3044	3076		19926

Project D531

Page 13 of 24 Pages

Exhibit R-3 (PE 0604802A)

939

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604802A Weapons and Munitions - Engineering Development								D613	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D613	Mortar Systems	10931	1556	0	0	0	0	0	0	21539	
<p>A. Mission Description and Budget Item Justification: This program provides funds to develop existing and emerging technology to enhance the effectiveness, lethality, versatility of use, mobility, and accuracy of mortar systems. Current mortar systems include conventional ammunition with a variety of fuzing and applications, weapons that range from man-portable 60mm to vehicle-mounted 120mm mortars, and related equipment such as fire control, mortar ballistic computer, training devices, and ammunition. This project provides for the qualification of a new Mortar Ballistic Computer to replace and insure continued maintainability of the nearly obsolescent current M23 version. This project also provides for the qualification of a full range training cartridge for the 120mm Battalion Mortar System. This cartridge provides a realistic training alternative at a lower cost than training with high explosive service ammunition. It also provides for the qualification of a mortar illumination round (conventional and infrared).</p> <p>Acquisition Strategy: The full range training cartridge enters production with the developer as option to the development contract in FY 96. Follow on buys are competitive. The illumination round enters production in FY 97. The Improved Mortar Ballistic Computer (IMBC) will begin production in FY 96 through PM common hardware with government integration of software.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 603 Completed development of IMBC software 153 Conducted pre-production qualification testing (PPQT) 673 Conducted operational testing of IMBC 1502 Type classified the IMBC 300 Type classified the Full Range Training Round (FRTC) 1700 Conducted PPQT for the FRTC 4200 Completed development of 120mm illumination (conventional and infrared) rounds 1800 Conducted engineering and PPQT Total 10931 											

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
D613

5 - Engineering and Manufacturing Development

0604802A Weapons and Munitions - Engineering Development

FY 1996 Planned Program:

- 189 Increment container process optimization
- 190 Propellant process optimization
- 1139 Fin optimization/load, assembly and pack optimization
- 34 Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Research Program Reauthorization Act of 1992
- 4 Revised economic assumption- not available for execution
- Total 1556

FY 1997 Planned Program: No FY 1997 program

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	11165	0	0
Appropriated Amount (FY 1995)	10931		
Adjustments to FY 1995	0		
Appropriated Amount (FY 1996)		1572	
Adjustment to FY 1996		-16	
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			0
Current President's Budget Submit	10931	1556	0

Change Summary Explanation:

Funding: FY 1996: This program has been reduced for revised economic assumptions.

C. Other Program Funding Summary

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
Procurement, Ammunition, Army:									
SSN E25504, XM929	22546	65812	30106	24198	23474	18717	0	0	215674
SSN E25507, XM931	0	18244	49539	35563	31661	41272	43940	0	220219
SSN E25502, XM933	29789	0	0	0	0	0	0	0	157017
SSN E25503, XM930	0	0	19360	11484	0	0	0	0	37109
SSN E25501, XM934	0	0	0	7656	57040	47162	46812	0	237032
Other Procurement, Army: K99200 (IMBC)	0	4862	6850	6471	0	0	0	0	45155

Project D613

Page 15 of 24 Pages

Exhibit R-2 (PE 0604802A)

941

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604802A Weapons and Munitions - Engineering Development								D613	
D. Schedule Profile		FY 1995		FY 1996		FY 1997					
		1	2	3	4	1	2	3	4		
Development of IMBC software					X*						
Conduct DT/OT of the IMBC					X*						
Type classify the IMBC							X				
Develop and test 120mm FRTC							X				
Type classify XM930 Illumination round									X		
Type classify XM931 FRTC								X			
*Completed milestone											

Project D613

Page 16 of 24 Pages

Exhibit R-2 (PE 0604802A)

942

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT		
BUDGET ACTIVITY										PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development										0604802A Weapons and Munitions - Engineering Development				
Contractor or Government Performing Activity										Contract Method/Type or Funding Vehicle				
Award or Obligation Date										Performing Activity				
Project Office										Total Prior to FY 1995				
FY 1995										FY 1996				
FY 1997										Budget to Complete				
Total Program										Total Program				
Support and Management Organizations														
PM Mortars	Allot	1Q94	804	804	433	371	0	0	804					
ARDEC	WR	1Q94	3100	3100	2716	384	0	0	3100					
CECOM	WR	1Q94	76	76	76	0	0	0	76					
Camber Corp.,NJ	SS/FP	3Q94	413	413	413	0	0	0	413					
SET: TN	SS/SP	3Q94	120	120	120	0	0	0	120					
PM Mtrs: IMBC	Allot	1Q95	119	119	0	119	0	0	119					
ARDEC	WR	1Q95	63	63	0	63	0	0	63					
ACALA	WR	1Q95	135	135	0	135	0	0	135					
ARDEC: M931	WR	3Q95	3041	3041	0	3041	0	0	3041					
Test and Evaluation Organizations														
TECOM, WSMR, NM	WR	2Q95	130	130	15	115	0	0	130					
CSTA: APG	WR	2Q95	140	140	72	68	0	0	140					
WSMR: IMBC	WR	2Q95	153	153	0	153	0	0	153					
TEXCOM Fld Spt	WR	4Q95	8	8	0	8	0	0	8					
Acty, Ft. Hood														
CSTA: APG (M931)	WR	4Q95	760	760	0	760	0	0	760					
AMSAA: APG	WR	3Q95	75	75	0	75	0	0	75					
WES: Vicksburg, MS	WR	4Q95	40	40	0	40	0	0	40					
Government Furnished Property: None														
Subtotal Product Development										5207	5599	1556	0	12362
Subtotal Support and Management										3758	4113	0	0	7871
Subtotal Test and Evaluation										87	1219	0	0	1306
Total Project										9052	10931	1556	0	21539
Project D613										Exhibit R-3 (PE 0604802A)				

Page 18 of 24 Pages

944

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		March 1996	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
5 - Engineering and Manufacturing Development		0604802A Weapons and Munitions - Engineering Development								D712			
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost			
D712 Non-Lethal Programs		0	0	3284	1064	0	0	0	0	4348			
<p>A. Mission Description and Budget Item Justification: This program will demonstrate the application of non-lethal technologies, devices and munitions that are explicitly designed and employed to incapacitate personnel and/or materiel while minimizing fatalities and undesired damage to property and the environment. Non-lethal devices have the potential to provide the foundation for regional and peacekeeping operations to be successful, and may allow military forces to respond to such conflicts through the use of an established Graduated Response Matrix. The application of non-lethal capabilities that minimizes collateral damage while providing for safe employment and mission accomplishment will enhance operational effectiveness.</p> <p>Acquisition Strategy: Upon completion of user demonstration and feedback, selected non-lethal devices/munitions will be integrated into the appropriate acquisition phase depending on their design maturity and ability to fulfill the user's needs.</p> <p>FY 1995 Accomplishments: No FY 1995 program</p> <p>FY 1996 Planned Program: No FY 1996 planned program</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 2000 Acoustics: Initiate EMD phase of dismounted battle space battle laboratory (DBBL) advanced concept technology II (Act II) combustion-driven acoustic pulser and demonstrate electric-powered alternative. Initiate platform integration of combustion-driven siren 900 Kinetics: Demonstrate cold temperature dispensability area coverage of 40mm Dye Marker; evaluate Muzzle Launched Ordnance as potential Soldier Enhancement Program (SEP); down select and generate preliminary performance specification for 12-gauge point control and area dispersal non-lethal munition; initiate variable velocity barrel EMD and testing 284 Entanglements: Prove-out optical proximity fuze critical operational parameters and ballistic deployment of net from 40mm M203 launcher 100 Vehicle stopper: Utilize results of vehicle stopper evaluation study to accelerate development of selected electric vehicle immobilizing devices <p>Total 3284</p>													

Project D712

Page 19 of 24 Pages

Exhibit R-2 (PE 0604802A)

945

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development	0604802A Weapons and Munitions - Engineering Development			
B. Project Change Summary		FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)		0	0	0
Appropriated Amount (FY 1995)		0		
Adjustment to FY 1995		0		
Appropriated Amount (FY 1996)			0	
Adjustment to FY 1996			0	
Adjustments to Budget year (FY 1997) since FY 1996 President's Budget				3284
Current President's Budget Submit		0	0	3284
Change Summary Explanation:				
Funding: FY 1997 new start program funded since submission of FY 1996 President's Budget.				
C. Other Program Funding Summary:				
		FY 1995	FY 1996	FY 1997
D. Schedule Profile				
Demonstration				X
Engineering testing				X

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604802A Weapons and Munitions - Engineering
DevelopmentPROJECT
D712A. Project Cost Breakdown

Product development	FY 1995	FY 1996	FY 1997
	0	0	3284
Management and engineering support	0	0	0
Test and evaluation	0	0	0
Total	0	0	3284

B. Budget Acquisition History and Planning InformationPerforming Organizations

Contractor or

Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
--------------------------------------	--------------------------------------	--------------------------------	-------------------------------	--------------------------	------------------------------	---------	---------	---------	-----------------------	------------------

Product Development Organizations

ARDEC: NJ

ERDEC: MD

AVREC: VA

ARL: MD

Support and Management Organizations: None

Test and Evaluation Organizations: None

Government Furnished Property: Not applicable

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

	0	0	0	0	0	0	0	0	1064	4348
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	3284	1064	4348

Project D712

Page 21 of 24 Pages

Exhibit R-3 (PE 0604802A)

947

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604802A Weapons and Munitions - Engineering Development

DAS1

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DAS1 Small Arms Improvement	0	486	0	0	0	0	0	0	486

A. Mission Description and Budget Item Justification: This program provides funds to develop existing and emerging technology to enhance lethality, target acquisition, fire control training effectiveness and reliability for small arms weapon systems. Current small arms include a variety of personal defense weapons (.38 caliber, .45 caliber, 9mm), individual weapons (5.56mm-7.62mm), crew-served weapons (5.56mm-40mm) and related equipment such as fire control, training devices and ammunition. This project will develop a universal mounting bracket for the MK19-3 Grenade Machine Gun that provides a common mounting interface for various fire control devices. The current rear sight lacks sufficient structural integrity to mount such devices, including night vision equipment. Funding is sufficient to complete development, testing, and modification of the MK19-3 Grenade Machine Gun technical data package (TDP).

Acquisition Strategy: The universal mounting bracket will enter production as an engineering change to the current MK19-3 Grenade Machine Gun technical data package. Currently fielded systems will be modified through a MK19-3 modification effort that is currently unresourced.

FY 1995 Accomplishments: No FY 1995 program.

FY 1996 Planned Program:

- 101 Draft performance specifications
- 50 Purchase commercial hardware
- 237 Perform validation testing
- 85 Finalize performance specifications
- 11 Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Research Program Reauthorization Act of 1992
- 2 Revised economic assumption- not available for execution
- Total 486

FY 1997 Planned Program: No FY 1997 program

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604802A Weapons and Munitions - Engineering Development

DAS1

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget year (FY 1997) since

FY 1996 President's Budget

Current Budget Submit/President's Budget

FY 1995

0

0

0

491

-5

FY 1996

0

FY 1997

0

Change Summary Explanation:

Funding: : FY 1996: This program has been reduced for revised economic assumptions.

C. Other Program Funding Summary: Not applicable.D. Schedule Profile

FY 1995

1

2

3

4

1

FY 1996

2

3

4

1

FY 1997

2

3

4

Draft performance specifications

Purchase commercial hardware

Perform validation tests

Finalize performance specifications

X

X

X

X

Project DAS1

Page 23 of 24 Pages

Exhibit R-2 (PE 0604802A)

949

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development		0604802A Weapons and Munitions - Engineering Development			DAS1
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997	
Other government support		0	386	0	
Program management support		0	50	0	
Contract support		0	50	0	
Total		0	486	0	
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or	Contract				
Government	Method/Type				
Performing	or Funding				
Activity	Vehicle				
	Award or				
	Obligation				
	Date				
Product Development Organizations					
ARDEC	MIPR	288	0	286	0
Support and Management Organizations					
PM, Small Arms	MIPR	50	0	50	50
ACALA	MIPR	50	0	50	50
TACOM	MIPR	50	0	50	50
Test and Evaluation Organizations					
Aberdeen Test	MIPR	50	0	50	50
Center					
Government Furnished Property: None					
Subtotal Product Development			0	286	0
Subtotal Support and Management			0	150	0
Subtotal Test and Evaluation			0	50	0
Total Project			0	486	0
Project DAS1					
Page 24 of 24 Pages					
Exhibit R-3 (PE 0604802A)					

950

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development									
	COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
	Total Program Element (PE) Cost	19804	20188	20330	16185	14391	9544	8915		Continuing	
DH01	Combat Engineer Equipment Engineering Development	4122	9425	9635	7737	4614	96	95	Continuing	Continuing	
DH14	Logistics Support Equipment Engineering Development	2476	1324	88	88	88	96	95	Continuing	Continuing	
DL39	General Support Equipment Engineering Development	1555	1603	1677	2136	2356	2105	2111	Continuing	Continuing	
DL41	POL Distribution Equipment Engineering Development	1428	1187	1033	1155	1177	1147	1137	Continuing	Continuing	
DL42	Camouflage System Engineering Development	0	1255	962	962	959	478	474	Continuing	Continuing	
D194	Engine Driven Generators Engineering Development	1943	812	2230	269	286	702	704	Continuing	Continuing	
D279	Airdrop Equipment Engineering Development	2054	1452	1444	1452	1452	1480	1468	Continuing	Continuing	
D429	SICPS Rigidwall Shelter Engineering Development	4201	2791	3261	2386	1093	1240	1231	Continuing	Continuing	
D461	Marine Oriented Logistics Equipment Engineering Development	2025	339	0	0	2366	2200	1600	Continuing	Continuing	
Mission Description and Budget Item Justification: This Program Element (PE) supports engineering and manufacturing development (EMD) of new and advanced combat support and combat service support equipment and therefore belongs in Budget Activity 5.											

Page 1 of 41 Pages

Exhibit R-2 (PE 0604804A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		March 1996	
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT			
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development								DH01			
COST (in Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost			
DH01	Combat Engineer Equipment Engineering Development	4122	9425	9635	7737	4614	96	95	Continuing	Continuing			
<p>A. Mission Description and Budget Item: This project supports the development and transition to procurement of military tactical bridging for wet and dry gap bridging requirements such as the Improved Common Bridge Transporter (ICBT), the Improved Ribbon Bridge (IRB) Bays, and the Heavy Dry Support Bridge (HDSB). All bridging work is in support of the increased military load class (MLC) requirements for the M1 tank. This project also provides for the non-developmental item (NDI) acquisition of the Deployable Universal Combat Earthmover (DEUCE) and market investigations of other engineer construction equipment.</p> <p>Acquisition Strategy: ICBT - Competitive RDTE followed by procurement. HDSB - Competitive RDTE followed by procurement. DEUCE - Competitive procurement of integrated NDI.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 55 Developed DEUCE logistics 2776 Procured preproduction prototypes for DEUCE 14 Initiated testing of preproduction prototypes for DEUCE 275 Completed ICBT PQT 300 Completed ICBT OT 361 Initiated preparations for ICBT Milestone III review 341 Initiated ICBT contract modification for transloadability and transportability Total 4122 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 400 Conduct Source Selection for HDSB 280 Conduct Milestone II Review for HDSB 7432 Award two HDSB Engineering Manufacturing Development (EMD) contracts 190 Initiate IRB technical and configuration baseline 400 Conduct Milestone III for ICBT 300 Complete preproduction qualification test for DEUCE 100 Conduct Milestone III IPR for DEUCE 													

Project DH01

Page 2 of 41 Pages

Exhibit R-2 (PE 0604804A)

952

UNCLASSIFIED

UNCLASSIFIED

[illegible]

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996	PROJECT							
BUDGET ACTIVITY										PE NUMBER AND TITLE			PROJECT DH01						
5 - Engineering and Manufacturing Development										0604804A Logistics & Engineer Equipment - Engineering Development									
C. Other Program Funding Summary																			
OPA3, M26800, Improved Common Bridge Transporter										FY 1995	FY 1996	FY 1997		FY 1998	FY 1999	FY 2000	FY 2001	To	Total
											3709	4300		4373	4434	4495	4561	Compl	Cost
OPA3, M26600, Improved Ribbon Bridge, Interior Bays																3172	3767	Cont	Cont
OPA3, M26700, Improved Ribbon Bridge, Ramp Bays																1359	2142	Cont	Cont
OPA3, M06105, Deployable Universal Combat Earthmover											9627	7707			9900	9427	7473	Cont	Cont
D. Schedule Profile																			
1 Awarded DEUCE contract										FY 1995									
										2		1							
										3		4							
										X*									
Conduct PPQT for DEUCE																			
Conduct Milestone III IPR for DEUCE																			
Conduct Milestone II Review for HDSB											X								
Award HDSB EMD contract																			
Fabricate HDSB EMD Prototypes																			
Conduct Milestone III Review for ICBT												X							
Release Request for Proposal for IRB Bays																			
Award IRB bays contract																			

Project DH01

Page 4 of 41 Pages

Exhibit R-2 (PE 0604804A)

954

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

DH01

A. Project Cost Breakdown

DH01 DEUCE & Construction Equipment

Program Management Support

Govt Engineering Spt

Prototype Hardware Development

Developmental and Operational Testing

Construction Equip Market Investigations

Miscellaneous

Subtotal

DH01 BRIDGING (HDSB, ICBT & IRB)

Primary Hardware Development

Integrated Logistics Support (ILS)

Technical Data development and data rights

Developmental Test and Evaluation

Program Management Support (three programs)

Miscellaneous

Subtotal

Total

FY 1995

FY 1996

FY 1997

2776

80

14

200

55

86

96

2845

120

96

5792

6310

50

100

100

201

1790

1590

93

1093

552

843

164

845

90

1277

142

4122

8979

9539

9425

9635

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Government

Performing

Activity

Contract

Method/Type

or Funding

Vehicle

Award or

Obligation

Date

Performing

Activity

EAC

Project

Office

EAC

Project

Office

EAC

FY 1995

FY 1996

FY 1997

Total

Prior to

FY 1995

FY 1996

FY 1997

Total

Program

Budget to

Complete

Total

Product Development Organizations

Caterpillar, Inc

Contractor

TBD

Contractor

TBD

MTC-Belvoir

FFP

C-CPFF

C-CPFF

Jul 95

Jul 96

Feb 97

2776

18399

2776

7412

7950

Project

Office

EAC

FY 1995

FY 1996

FY 1997

Total

Prior to

FY 1995

FY 1996

FY 1997

Total

Program

Budget to

Complete

Total

Program

Budget to

Complete

Total

Page 5 of 41 Pages

Exhibit R-3 (PE 0604804A)

955

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604804A Logistics & Engineer Equipment - Engineering Development

PROJECT

DH01

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program Cont
Total				EAC	1394	3829	8725	9156	Cont	Cont
Support and Management Organizations None										
Test and Evaluation Organizations None										
Miscellaneous										
VSE	Task Order	Various			454	100	200	150	Cont	Cont
TACOM	1095	Various			150	100	200	248	Cont	Cont
TECOM	1095	Various			539	93	300	85	Cont	Cont
Total					983	293	700	483	Cont	Cont
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Miscellaneous					Cont	293	700	483	Cont'd	Cont'd
Total Project					Cont	4122	9425	9639		

Project DH01

Page 6 of 41 Pages

Exhibit R-3 (PE 0604804A)

956

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

DH14

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DH14 Logistics Support Equipment Engineering Development	2476	1324	88	88	88	96	95	Continuing	Continuing

A. Mission Description and Budget Item Justification: Develops and transitions to procurement a series of Material Handling Equipment (MHE) items.

Acquisition Strategy: All Terrain Lifter Articulated System (ATLAS) - Competitive procurement of integrated NDI. Cargo Container Retriever (CCR) - Pre-Planned Product Improvements (P3I) to ATLAS. MHE - Competitive procurements for miscellaneous MHE.

FY 1995 Accomplishments:

- 188 Conducted Source Selection for ATLAS
- 1541 Awarded ATLAS contract and fabricate ATLAS Preproduction Qualification Test (PPQT) vehicles
- 346 Developed ATLAS logistics
- 252 Initiated ATLAS PPQT testing
- 149 Economic Adjustment
- Total 2476

FY 1996 Planned Program:

- 790 Complete Preproduction Qualification Testing of the ATLAS
- 234 Complete ATLAS logistics development
- 200 Conduct ATLAS Milestone III IPR
- 68 Conduct market investigations of material handling equipment
- 29 SBIR/STTR
- 3 Revised Economic Assumption not available for execution
- Total 1324

FY 1997 Planned Program:

- 25 Conduct market investigations for the Container Cargo Retriever
- 25 Conduct market investigations for warehouse Material Handling Equipment
- 38 Conduct market investigations for other general Material Handling Equipment
- Total 88

Project DH14

Page 7 of 41 Pages

Exhibit R-2 (PE 0604804A)

957

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

DH14

A. Project Cost Breakdown

Government Engineering and Other Support	FY 1995	FY 1996	FY 1997
Primary Hardware Development	225	300	
Developmental Test and Evaluation	1541		
Program Management Support	252	822	
Miscellaneous	121	134	
Economic Adjustment	188	68	88
Total	149		
	2476	1324	88

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
--	--------------------------------	--------------------------	---------------------	----------------	------------------------	---------	---------	---------	--------------------	---------------

Product Development Organizations

TRAC	CPFF	May 95	1541	1541						
------	------	--------	------	------	--	--	--	--	--	--

International

Support and Management Organizations: None

Test and Evaluation Organizations: None

Miscellaneous:

TARDEC	MIPR	Various	947	323	323	88				
PM CE/MHE	PO	Various	175	213	211				Cont'd	Cont'd
TECOM	MIPR	Various	420	250	790					
Miscellaneous			1542	786	1324	88				
Subtotal										
Economic Adjustment					149					

Project DH14

Page 9 of 41 Pages

Exhibit R-3 (PE 0604804A)

959

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				DH14
5 - Engineering and Manufacturing Development	0604804A Logistics & Engineer Equipment - Engineering Development				
Government Furnished Property : None					
	Total				Total
	Prior to				Budget to
	FY 1995	FY 1995	FY 1996	FY 1997	Complete
	Cont	1541			Cont
	Cont				Cont
	Cont		790		Cont
	Cont	786	534	88	Cont
		149			Cont
	Cont	2476	1324	88	Cont
Subtotal Product Development					
Subtotal Support and Management					
Subtotal Test and Evaluation					
Miscellaneous					
Economic Adjustment					
Total Project					

Project DH14

Page 10 of 41 Pages

Exhibit R-3 (PE 0604804A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY		PE NUMBER AND TITLE						DATE	PROJECT	
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development						March 1996	DL39	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DL39	General Support Equipment Engineering Development	1555	1603	1677	2136	2356	2105	2111	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: Develop and transition to procurement water purification equipment, maintenance equipment and environmental control units (ECU) that do not use ozone depleting refrigerants.</p> <p>Acquisition Strategy: Development and transition to competitive procurement for all items under this project.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 100 Completed testing of NBC protective covers for the 3000 GPH ROWPU. • 183 Initiated development of procedures and hardware for winterization of water storage and distribution equipment. • 200 Completed evaluation of candidate lightweight water purifiers. • 100 Completed market investigation of Packaged Water System. • 72 Initiated contract package for design/fabrication of lightweight water purifier. • 56 Performed Cost and Operational Effectiveness Analysis on NBC Survivability of 3000 GPH ROWPU. • 50 Completed market investigation of commercial 1500 GPH ROWPU systems. • 150 Updated program management documentation for the 1500 GPH ROWPU. • 25 Completed the Milestone 0 In Process Review for the 1500 GPH ROWPU. • 250 Investigated improvements into reverse osmosis membranes for 1500 GPH ROWPU. • 369 Initiated trade off analysis of subsystems for 1500 GPH ROWPU. Total 1555 <ul style="list-style-type: none"> • 88 Conduct tests on 36K British Thermal Units per Hour (BTUH) Environmental Control Units (ECU) prototypes. • 150 Conduct Milestone I/II In Process Review for 1500 GPH ROWPU. • 300 Complete trade off analysis of subsystems for 1500 GPH ROWPU. • 727 Design and fabricate integrated Test Bed Unit • 300 Initiate contract package for design/fabrication of 1500 GPH ROWPU EMD prototypes. • 34 SBIR/STTR 										

Project DL39

Page 11 of 41 Pages

Exhibit R-2 (PE 0604804A)

961

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0604804A Logistics & Engineer Equipment -

DL39

- 4 Revised Economic Assumption not available for execution

1603

- 171 Prepare data package for improved ECU procurement.

- 200 Update Program Management Documentation

Total 1677

Previous President's Budget (FY 1996)

Adjustment to FY 1995

Adjustment to FY 1996

President's Budget

အမျိုးသမီးများ၏ အကျိုးအမြတ်

Equipment Advanced Development

OPA3. MI.5335. Items Less Than \$2.0M

OPA3 RO5100 Water Purifier Unit Reveal

REFERENCES

100

Page 12 of 41 Pages

Exhibit R-2 (PE 0604804A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

DL39

D. Schedule Profile

FY 1995 FY 1996 FY 1997

1 2 3 4 1 2 3 4 1 2 3 4

Completed testing of NBC protective covers for the 3000 GPH ROWPU.

X*

Completed evaluation of candidate lightweight water purifiers.

X*

Completed market investigation of Packaged Water System.

X*

Completed the Milestone 0 In Process Review for the 1500 GPH ROWPU.

X*

Conduct tests on 36K British Thermal Units per Hour (BTUH) Environmental Control Units (ECU) prototypes.

X

Conduct Milestone I/II In Process Review for 1500 GPH ROWPU.

X

Complete trade-off analysis of subsystem for 1500 GPH ROWPU

X

Initiate contract package for design/fabrication of 1500 GPH ROWPU EMD prototypes

X

Design and fabricate prototype 1500 GPH ROWPU

X

Perform technical feasibility test of 1500 GPH ROWPU integrated Test Bed Unit

X

Award 1500 GPH ROWPU EMD

X

prototype contract

Update Program Management

X

Documentation

Project DL39

Page 13 of 41 Pages

Exhibit R-2 (PE 0604804A)

963

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE				
5 - Engineering and Manufacturing Development	0604804A Logistics & Engineer Equipment - Engineering Development				DL39
A. Project Cost Breakdown					
Hardware Development	FY 1995	FY 1996	FY 1997		
Operational Test and Evaluation	1253	1090	867		
Development Test and Evaluation		86	450		
Government Engineering and Support	252	325	250		
Government Program Support		50	60		
Miscellaneous	50	52	50		
Total	1555	1603	1677		
B. Budget Acquisition History and Planning Information					
Performing Organizations					
Contractor or Contract					
Government Method/Type					
Performing or Funding					
Activity Vehicle					
Award or Obligation					
Date					
Performing Activity					
EAC					
Product Development Organizations - None					
Support and Management Organizations - None					
Test and Evaluation Organizations - None					
Miscellaneous					
TARDEC	In-House	Various	970	657	386
CECOM	In-House	Various		88	71
Radian	Task Order	Various	25		100
CRREL	MIPR	Various	75	20	20
Dugway P.G.	MIPR	Various	25	100	50
BRTRC	Task Order	Various	170	100	100
ARL	MIPR	Various	25	15	50
ATCOM	MIPR	Various	55	15	50
Vitro Inc.	Task Order	Various	83	36	50
NSF	MIPR	Jan 95	85		
USBR	MIPR	Feb 95	30		
Project DL39					
Page 14 of 41 Pages				Exhibit R-3 (PE 0604804A)	

964

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE										
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development										DL39
Contractor or Government	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program		
Activity	CHIPPM	MIPR	Various	EAC		12	50					
	NFESC	MIPR	Various				400	200				
	TECOM	MIPR	Various					50				
	DSLCL	MIPR					75					
	Contractor (TBD)	CPFF	Dec 96				47	500				
	CECOM	MIPR	Various			1555	1603	50				
	TOTAL							1677				
Government Furnished Property - None												
Subtotal Product Development - None												
Subtotal Support and Management - None												
Subtotal Test and Evaluation - None												
Miscellaneous												
						1555	1603	1677				
	Total Project					1555	1603	1677				

Project DL39

Page 15 of 41 Pages

Exhibit R-3 (PE 0604804A)

Project DL39

Page 15 of 41 Pages

Exhibit R-3 (PE 0604804A)

965

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development								DL41	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DL41	POL Distribution Equipment Engineering Development	1428	1187	1033	1155	1177	1147	1137	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Develop and transition to procurement petroleum storage and distribution systems.</p> <p>Acquisition Strategy: Development of and transition to competitive procurement for all items under this project.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 1205 Completed fabrication of Lightweight Arctic Forward Area Refueling (LAFARE) prototypes and Phase I Pre-Production Qualification Testing (PPQT). • 50 Continued long term exposure testing of tank fabrics. • 73 Initiated market investigation for improved Tactical Fuel Storage and Distribution System (TFSDS) components. • 100 Initiated pipeline corrosion study and testing <p>Total 1428</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 375 Complete Phase II PPQT, logistics demonstration, and physical configuration audit for LAFARE. • 100 Conduct Milestone III - type classification for LAFARE. • 452 Perform market investigation and test improved TFSD candidate items. • 60 Prepare statement of work and specifications for design and testing of TFSD components. • 50 Continue long term exposure testing of tank fabrics. • 120 Procure long lead time items for Petroleum Quality Analysis Set (PQAS) EMD prototypes • 27 SBIR/STTR • 3 Revised Economic Assumption not available for execution <p>Total 1187</p>											

Project DL41

Page 16 of 41 Pages

Exhibit R-2 (PE 0604804A)

966

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		PE NUMBER AND TITLE					DATE	PROJECT	
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development					March 1996	DL41	
FY 1997 Planned Program:									
•	35	Award TFSD design contract.							
•	713	Design and fabricate TFSD initial prototypes.							
•	150	Initiate TFSD component testing.							
•	85	Procure long lead items for PQAS EMD prototypes							
•	50	Continue long term exposure testing of tank fabrics							
Total		1033							
B. Project Change Summary									
Previous President's Budget (FY 1996)		FY 1995		FY 1996		FY 1997			
Appropriated Amount (FY 1995)		1457		1220		1070			
Adjustment to FY 1995		1429							
		-1							
Appropriated Amount (FY 1996)									
Adjustment to FY 1996				-12		-37			
Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget									
Current President's Budget Submit		1428		1187		1033			
C. Other Program Funding Summary									
RDTE, 0603804.DK41, POL Distribution Equipment Advanced Development		FY 1995		FY 1996		FY 1997		FY 1998	
OPA3, ML5330, Items Less Than \$2.0M (POL)		648		885		891		912	
		8273		4554		5331		2274	
						3117		3232	
								3116	
								Total	
								To	
								Compl	
								Cont	
								Cont	
D. Schedule Profile									
Continued long term exposure testing of tank fabrics		FY 1995		FY 1996		FY 1997			
		1		2		3		4	
Completed LAFARE prototypes and conducted Phase I PPQT		X*		4		1		2	
Initiated market investigation for TFSD components				3		4		3	
				4		1		2	
						3		4	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	
								Cont	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY					DATE			PROJECT	
5 - Engineering and Manufacturing Development					0604804A Logistics & Engineer Equipment - Engineering Development			DL41	
D. Schedule Profile					FY 1996			FY 1997	
					1			2	
					2			3	
					3			4	
					4			1	
					X*			2	
								3	
								4	
Initiated pipeline corrosion analysis and testing									
Complete Phase II PPQT and logistic demonstration for LAFARE					X				
Complete market investigation of TFSD components					X				
Complete physical configuration audit of LAFARE TDP									
Conduct MS III IPR for TFSD								X	
Award TFSDS competitive design contract									
Procure long lead items for PQAS EMD prototypes					X				

Project DL41

Page 18 of 41 Pages

Exhibit R-2 (PE 0604804A)

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

DL41

A. Project Cost Breakdown

Hardware Development	FY 1995	FY 1996	FY 1997
Test and Evaluation	722	665	421
Government Engineering and Support	350	103	50
Government Program Support	281	346	490
Total	75	73	72
	1428	1187	1033

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	FY 1998	Budget to Complete	Total Program
Product Development Organizations - TARDEC											
Support and Management Organizations - ARL, Navy, ATCOM											
Test and Evaluation Organizations - TECOM, TEXCOM											

Miscellaneous:

TARDEC	In-House	Various			119	123	350	500			
Contractors	CPFF	9312			1283	1283	529	458			
TECOM	MIPR	9512			12	12	113	40			
TEXCOM	MIPR	9402			10	10	10	10			
ARL	MIPR	9602					25	25			
Navy	MIPR	9603					160				

Government Furnished Property - None

Project DL41

Page 19 of 41 Pages

Exhibit R-3 (PE 0604804A)

969

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT	
5 - Engineering and Manufacturing Development	0604804A Logistics & Engineer Equipment - Engineering Development		DL41	
	FY 1995	FY 1996	FY 1997	Budget to Complete
	1366	1039	913	Cont
Subtotal Product Development				Cont
Subtotal Support and Management	50	35	80	Cont
Subtotal Test and Evaluation	12	113	40	Cont
Subtotal Miscellaneous				Cont
Total Project	1428	1187	1033	Cont

Project DL41

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

DL42

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DL42 Camouflage System Engineering Development	0	1255	962	962	959	478	474	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project DL42, which is restructured in FY 96 from DH01, provides for development and transition to procurement low cost low observable systems for suppression of visual, near-infrared, thermal, radar, and acoustic signatures of highly mobile and semi-mobile weapon assets.

Acquisition Strategy: Develop camouflage systems for the Services and transition items to competitive procurement.

FY 1995 Accomplishments: None

FY 1996 Planned Program:

- 1224 Develop desert Ultralightweight Camouflage Screening System (ULCANS)
- 28 SBIR/STTR
- 3 Revised Economic Assumption not available for execution
- Total 1255

FY 1997 Planned Program:

- 300 Develop snow ULCANS
- 262 Incorporate Electro-Optic (EO) signature enhancements in ULCANS
- 400 Develop urban ULCANS for Military Operations in Urban Terrain (MOUT) Advanced Concept Technology Demonstration (ACTD)
- Total 962

Project DL42

Page 21 of 41 Pages

Exhibit R-2 (PE 0604804A)

971

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development	0604804A Logistics & Engineer Equipment - Engineering Development			DL42
A. Project Cost Breakdown				
Government Engineering Support		FY 1995	FY 1996	FY 1997
Contractor Engineering Support			515	400
Developmental Test and Evaluation			414	362
Travel			250	150
Miscellaneous			56	30
Total			20	20
			1255	962
B. Budget Acquisition History and Planning Information: None				

Project DL42

Page 23 of 41 Pages

Exhibit R-3 (PE 0604804A)

973

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development								D194	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D194	Engine Driven Generators Engineering Development	1943	812	2230	269	286	702	704	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Develop and transition to procurement a series of diesel engine driven generator sets/auxiliary power units and provide continual modernization of fielded sets in order to meet Federally mandated environmental statutes with reduced weight and size and reduced thermal signatures.</p> <p>Acquisition Strategy: Develop and transition to competitive procurement all items in this project.</p> <p>1995 Accomplishments:</p> <ul style="list-style-type: none"> 1558 Completed design and down-selected 5kW 28VDC Auxiliary Power Unit (APU). 350 Initiated testing of 5kW 28VDC APU. 35 Economic Adjustment Total 1943 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 268 Begin fabrication of 5kW 28VDC APU Pre-production Qualification Test (PPQT) models. 252 Begin testing of 5kW 28VDC APU PPQT models. 253 Complete fabrication of 5kW 28VDC PPQT models. 25 Begin development of 3kW Tactical Quiet Generator (TQG). 11 SBIR/STTR 3 Revised Economic Assumption not available for execution Total 812 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 150 Complete testing of 5kW 28VDC APU PPQT models. 149 Complete preparation of formal program review of 5kW 28VDC APU. 1600 Award competitive contracts for design and prototype development of 3kW sets. 331 Evaluate state of the art designs for lightweight 3kW generator sets. Total 2230 											

Project D194

Page 24 of 41 Pages

Exhibit R-2 (PE 0604804A)

974

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996	PROJECT	
BUDGET ACTIVITY		PE NUMBER AND TITLE										PROJECT	
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development										D194	
D. Schedule Profile		FY 1995				FY 1996				FY 1997			
		1	2	3	4	1	2	3	4	1	2	3	4
Begin development of 3kW (TQG)													
Award competitive contracts for design and prototype development of 3kW sets										X			
Evaluate state of the art designs for lightweight 3kW generator sets													X

Project D194

Page 26 of 41 Pages

Exhibit R-2 (PE 0604804A)

976

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

D194

A. Project Cost Breakdown

Primary Hardware Development	FY 1995	FY 1996	FY 1997
Test and Evaluation	1122	397	1550
Government Engineering & Support	200	182	150
Program Management	300	70	430
Miscellaneous	100	75	60
Total	221	88	40
	1943	812	2230

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
--	---	--------------------------	-------------------------	--------------------	------------------------	---------	---------	---------	--------------------	---------------

Product Development Organizations

Contractors	CPFF	9406				1122	400	1600		
-------------	------	------	--	--	--	------	-----	------	--	--

Various

Support and Management Organizations: None

Test and Evaluation Organizations: None

Miscellaneous:

CECOM	In-House	Various				589	215	480	Cont	Cont
TECOM	MIPR	Various				200	200	150	Cont	Cont
Economic Adjustment						32				
Total						1943	815	2230		

Government Furnished Property: None

Project D194

Page 27 of 41 Pages

Exhibit R-3 (PE 0604804A)

977

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		D194		
5 - Engineering and Manufacturing Development	0604804A Logistics & Engineer Equipment - Engineering Development				
	Total				
	Prior to				Budget to
	FY 1995	FY 1995	FY 1996	FY 1997	Complete
		1943	812	2230	Program
Subtotal Product Development					
Subtotal Support and Management					
Subtotal Test and Evaluation					
Subtotal Miscellaneous		1943	812	2230	
Total Project					
Project D194					
Page 28 of 41 Pages				Exhibit R-3 (PE 0604804A)	

978

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

D279

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D279 Airdrop Equipment Engineering Development	2054	1452	1444	1452	1452	1480	1468	Continuing	Continuing

A. Mission Description and Budget Item Justification: Develop and transition to procurement cargo and personnel parachutes, airdrop containers and associated equipment. Air delivery equipment will improve safety and facilitate airborne cargo insertions into non-permissive environments.

Acquisition Strategy: Developments transition to competitive procurement.

FY 1995 Accomplishments:

- 85 Completed user testing of All Purpose Weapons and Equipment Container (AIRPAC) to enhance airborne soldier landing safety and assure combat readiness upon landing
- 693 Completed combined technical/user testing for 60,000 pound airdrop system allowing airdrop of linked loads using the C-17 aircraft increasing lethality and rapid ground assembly of prime movers, weapon systems, and ammo combinations
- 419 Provided support to the USAF C-17 aircraft program to ensure that Army personnel and cargo requirements are met
- 857 Initiated development of Guided Parafail Air Drop System - Light (GPADS-L), Rapid Acquisition Program to provide a precision guided offset delivery capability for payloads up to 1500 pounds

Total 2054

FY 1996 Planned Program:

- 225 Type classify 60,000 pound airdrop system (single and linked platform).
- 183 Complete the Army airdrop capability effort directly supporting the USAF C17 program ensuring a fully operational airborne capability and airborne soldier safety.
- 708 Conduct technical/operational tests and type classify GPADS-L as part of the Warfighting Rapid Acquisition Program (WRAP).
- 300 Evaluate Advanced Reserve Parachute System (ARPS) candidates from market survey, a companion system to the Advanced Tactical Parachute System (main canopy). ARPS is a concurrent program to increase safety and lethality of Force XXI Airborne assault operations.
- 32 SBIR/STTR
- 4 Revised Economic Assumption not available for execution

Total 1452

Project D279

Page 29 of 41 Pages

Exhibit R-2 (PE 0604804A)

979

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996	PROJECT					
BUDGET ACTIVITY	PE NUMBER AND TITLE								
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development							
FY 1997 Planned Program:									
• 1050 Design, fabricate and conduct Technical Testing (TT) of prototype ARPS to improve the safety and lethality of Force XXI Airborne assault operations									
• 394 Acquire and evaluate prototype systems for 500 foot, medium weight (20,000 lbs), Air Drop System, providing improved accuracy and significantly reduced vulnerability for Army combat equipment and AF delivery aircraft, during airborne assault operations									
Total	1444								
B. Project Change Summary									
Previous President's Budget Request (FY 1996)		FY 1995	FY 1996	FY 1997					
Appropriated Amount (FY 1995)		1487	1493	1496					
Adjustment to FY 1995		1456							
Appropriated Amount (FY 1996)		598	1467						
Adjustment to FY 1996			-15	-52					
Adjustments to Budget Year (FY 1997) since FY 1996									
President's Budget									
Current President's Budget Submit	2054		1452	1444					
Change Summary Explanation: Additional FY 95 funding (+ 598) reprogrammed due to increased costs for GPADS-L system.									
C. Other Program Funding Summary									
RDTE, 0603804 D266, Airdrop Equipment		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	Total
Advanced Development		1197	1452	1444	1452	1452	1433	1611	Compl Cont
OPA3, R10901, Low Velocity Airdrop Delivery System (LVADS)							1600	3900	Cont
OPA3, R10902, Advanced Precision Aerial Delivery System							5300	12200	Cont
Project D279									
Page 30 of 41 Pages									
Exhibit R-2 (PE 0604804A)									

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY		PE NUMBER AND TITLE										DATE	PROJECT
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development										March 1996	D279
D. Schedule Profile													
		FY 1995				FY 1996		FY 1997					
		1	2	3	4	1	2	3	4	1	2	3	4
Completed Technical/User tests for 60K			X*										
Concluded testing of AIRPAC			X*										
Initiated GPADS-L WRAP			X*										
Support AF to Defense Acquisition Board (DAB) Decision on C-17 Aircraft						X							
Type Classify 60K airdrop system							X						
Type Classify GPADS-L								X					
Evaluate ARPS form market survey									X				
Design, fabricate and conduct TT of ARPS													X
Acquire and evaluate systems for 20K Airdrop System													X

Project D279

Page 31 of 41 Pages

Exhibit R-2 (PE 0604804A)

981

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

D279

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Primary Hardware Development	1437	972	959
Program Management Support	255	185	185
Test and Evaluation	362	295	300
Total	2054	1452	1444

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government	Method/Type or Funding	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
SSCOM	In-House				15510	1437	972	959	Cont	Cont
Metric Systems	TBD	TBD							Cont	Cont
MICOM	MIPR								Cont	Cont
DA Staff										
Def Eval Spt Acty										
Army Nat'l Guard										
Support and Management Organizations										
SSCOM					2135	255	185	185	Cont	Cont
Test and Evaluation Organizations										
SSCOM	In-House				5661	362	295	300	Cont	Cont
Ft. Bragg	MIPR								Cont	Cont
TECOM/YPG										

Government Furnished Property: None

Project D279

Page 32 of 41 Pages

Exhibit R-3 (PE 0604804A)

982

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					
BUDGET ACTIVITY		PE NUMBER AND TITLE		DATE	PROJECT
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development		March 1996	D279
Total					
	Prior to	FY 1995	FY 1996	FY 1997	Budget to Complete
	FY 1995	15510	1437	959	Cont'd
Subtotal Product Development		2135	155	185	Cont'd
Subtotal Support and Management		5661	362	300	Cont'd
Subtotal Test and Evaluation		23306	2054	1444	Cont'd
Total Project					Cont'd

Project D279
Page 33 of 41 Pages
Exhibit R-3 (PE 0604804A)

983

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE	March 1996		
BUDGET ACTIVITY		PE NUMBER AND TITLE					PROJECT			
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development					D429			
	COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D429	SICPS Rigidwall Shelter Engineering Development	4201	2791	3261	2386	1093	1240	1231	Continuing	Continuing
<p>A. Mission Description and Budget Item Justification: Develops a series of rigid wall shelters (RWS) with added capabilities and enhanced survivability.</p> <p>Acquisition Strategy: Developments transition to procurement funded through PM interchange requirements except SICPS procured through OPA2.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 195 Completed testing for Non-Expandable EMI International Standards Organization (ISO) shelter and prepared all documentation for 2Q96 Milestone III IPR. Provides the capability to integrate digitized systems into EMI protected Army ISO shelters. 1343 Completed technical and operational testing of Version 3 Standard Integrated Command Post System (SICPS) which provides greater mission payload availability and improved control for the Army Tactical Command and Control systems. 242 Completed all testing and documentation for Modular Extendible Rigid Wall Shelter (MERWS) Milestone III Decision in 2Q96. MERWS provides easily deployable, high quality space for medical, maintenance, command and control and other functions. 395 Completed all testing of SICPS P31 Tent. Improvements enhance Chemical/Biological survivability, transportability and durability 937 Conducted a special IPR and awarded a Limited Procurement contract for Chemical/Biological Protective Shelter (CBPS) which provides frontline medical care in a Chem/Bio environment 242 Conducted a design study for ISO P31 components which will provide better collective protection for a Chem/Bio Deployable Medical Systems (DEPMEDS), and standardized environmental control and EMI protection for C31 users. 241 Conducted a design study for lightweight multipurpose shelter (LMS) Upgrade which will provide additional mission payload for the Enhanced Capacity Vehicle 606 Procured new technology components, split pack Environmental Control Unit (ECU) and rotary diesel engine generator, for objective SICPS. The objective SICPS will enhance mobility through the elimination of towed trailer and provide substantial increases in mission payload. <p>Total 4201</p>										

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

D429

FY 1996 Planned Program:

- 1152 Type Classify version 3 SICPS RWS
- 508 Begin test of new technology components (engine, generator, Environmental Control Unit (ECU), regenerative CB filters) for objective SICPS, lighter weight, quieter, less maintenance
- 292 Fabricate ISO P3I components
- 770 Fabricate Upgraded LMS prototypes
- 62 SBIR/STTR
- 7 Revised Economic Assumption not available for execution

Total 2791

FY 1997 Planned Program:

- 386 Conduct Technical Testing of ISO P3I Components
- 439 Complete testing for LMS upgrade
- 965 Complete testing for new technology SICPS components
- 1180 Complete design and begin fabrication of Large SICPS P3I components (on-board power and collective protection
- 291 Begin analysis and design of rigid/soft hybrid shelter which is a quickly deployable shelter with high expansion ratios for multiple soldier sustainment functions (hospitals, kitchens, billeting, etc.)

Total 3261

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget Request (FY 1996)	3581	2870	3377
Appropriated Amount (FY 1995)	3505		
Adjustment to FY 1995	696		
Appropriated Amount (FY 1996)		2820	
Adjustment to FY 1996		-29	-116
Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	4201	2791	3261

Change Summary Explanation: Additional FY 95 funding (+ 696) reprogrammed due to increased costs for CBPS system

Project D429

Page 35 of 41 Pages

Exhibit R-2 (PE 0604804A)

985

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE	March 1996
BUDGET ACTIVITY	PROJECT D429						
5 - Engineering and Manufacturing Development	0604804A Logistics & Engineer Equipment - Engineering Development						
	PE NUMBER AND TITLE						
	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
	Total	To	Cost	Compl	Cost	Compl	Cost
C. Other Program Funding Summary							
Various Shelter Items which are customer funded to include ISO Shelters, ATCCS and MRWS. (Approx. \$20M per year) CB DOD, R12300, Chemical/Biological Protective System OPA2, BZ9962, SICPS			12269	12369	12115		
	9531	25228	24624	24675	22284	28896	34424
D. Schedule Profile							
Milestone III for non-expandable EMI ISO shelter	FY 1995		FY 1996		FY 1997		
	1	2	3	4	1	2	3
			X				
Milestone III MERWS							
Conducted OT version 3 SICPS RWS		X*					
TT of ISO EMI P3I components							
Milestone III version 3 SICPS RWS						X	
TT LMS Upgrade							X

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

D429

A. Project Cost Breakdown
 Primary Hardware Development
 Program Management Support
 Test and Evaluation
 Total

FY 1995
2021
900
1289
4201

FY 1996
1455
500
846
2791

FY 1997
1501
880
880
3261

B. Budget Acquisition History and Planning Information**Performing Organizations**

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations										
SSCOM	In- House				11658	1002	1451	1501	Cont	Cont
DEEPCO	Various									Cont
Radian										
GTS										
Ft. Belvoir	MIPR									
TEXCOM										
ATCOM										
USA Med Ctr										
ARL										
Army Nat'l Guard										
Support and Management Organizations										
SSCOM					4651	900	500	880	Cont	Cont
Test and Evaluation Organizations										
TECOM					6990	1289	846	880	Cont	Cont

Government Furnished Property: None

Project D429

Page 37 of 41 Pages

Exhibit R-3 (PE 0604804A)

987

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE			
5 - Engineering and Manufacturing Development	0604804A Logistics & Engineer Equipment - Engineering Development			D429
	Total			
	Prior to			
	FY 1995	FY 1995	FY 1996	FY 1997
	11658	2012	1451	1501
Subtotal Product Development				
Subtotal Support and Management	9651	900	500	880
Subtotal Test and Evaluation	6990	1289	846	880
Total Project	23299	4201	2791	3261
			Budget to Complete	Total Program
			Cont	Cont
			Cont	Cont
			Cont	Cont
			Cont	Cont

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

D461

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D461 Marine Oriented Logistics Equipment Engineering Development	2025	339	0	0	2366	2200	1600	Continuing	Continuing

A. Mission Description and Budget Item Justification: This project provides engineering development of Army watercraft systems. The FY 95 effort for Test and Evaluation and Manual updates of the Lighter Amphibian Resupply Cargo -60 (LARC-LX) will nearly complete the development phase of this program. The FY 95 effort for the Landing Craft Mechanized -8 (LCM-8) to Logistics Service Craft (LSC) conversion will demonstrate the feasibility of fulfilling the Army's requirement for CHI boats utilizing existing fleet assets. The FY 96 efforts for the Pusher Tug and Floating Crane will provide the engineering development necessary to meet the Operational requirements for these craft. The FY 96 effort will complete LARC-LX development phase. The FY 96 Communication, Electronic, and Navigation (CEN) will begin a prototype. The FY 96 effort will complete Anchor Mooring and safety enhancements for the Causeway.

Acquisition Strategy: Floating Crane -- Competitive Procurement to performance specification. Pusher Tug -- Competitive Procurement to performance specification

FY 1995 Accomplishments:

- 525 Completed technical data package for Lighter Amphibian Resupply Cargo-60 Ton (LARC-LX)
- 419 Completed nearly all test and evaluation of LARC-LX prototype
- 326 Completed LARC-LX manuals
- 404 Initiated Prototype of the Landing Craft Mechanized (LCM-8) to logistics support craft (LSC) conversion (LSC formerly called "CHI Boat")
- 351 Completed new communications, electronics and navigation (CEN) suite development
- Total 2025

FY 1996 Planned Program:

- 45 Develop optimum "pusher knee" configuration for the pusher tug
- 45 Develop the design and storage of camel for interface between floating crane and cargo ships
- 58 Complete Mooring, Anchor, and safety enhancements for Causeway
- 136 Begin prototype effort of Communications, Electronics, and Navigation suite for watercraft
- 45 Complete test and evaluation of LARC-LX prototype
- 8 SBIR/STTR
- 2 Revised Economic Assumption not available for execution
- Total 339

Project D461

Page 39 of 41 Pages

Exhibit R-2 (PE 0604804A)

989

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE										D461
5 - Engineering and Manufacturing Development		0604804A Logistics & Engineer Equipment - Engineering Development										
FY 1997 Planned Program: None												
B. Project Change Summary												
Previous President's Budget Request (FY 1996)		FY 1995	FY 1996	FY 1997								
Appropriated Amount (FY 1995)		2794	348									
Adjustment to FY 1995		2735										
		-710										
Appropriated Amount (FY 1996)			342									
Adjustment to FY 1996			-3									
Adjustment to Budget Year (FY 1997) since FY 1996												
President's Budget												
Current President's Budget Submit		2025	339									
Change Summary Explanation: FY 95 funds (-715) were reprogrammed to other Army priority PEs and projects due to decreased costs for this project.												
C. Other Program Funding Summary												
OPA3, M32400, Floating Crane		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost		
				14328	14256	14145	14112	14011		70852		
OPA3, M44500, Pusher Tug, Small			3464	6877	6843					17184		
OPA3, MA0900, LARC-60 SLEP							6547	6501		13048		
D. Schedule Profile												
Pusher Tug milestone III		1	2	3			FY 1996	FY 1997				
Pusher Tug contract award					4	1	2	3	4			
Pusher Tug material release				X*		4	1					
Floating Crane milestone I/III							X					
Floating Crane contract award								X				

Project D461

Page 40 of 41 Pages

Exhibit R-2 (PE 0604804A)

990

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604804A Logistics & Engineer Equipment -
Engineering Development

D461

A. Project Cost Breakdown

Contractor Engineering Support (includes test & evaluation)

Program Management Support

Total

FY 1995

1967

58

2025

FY 1996

309

30

339

FY 1997

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Contract

Government Method/Type

Performing or Funding

Activity Vehicle

Award or Obligation

Date

Performing Activity

EAC

Project Office

EAC

Total Prior to

FY 1995

FY 1995

FY 1996

FY 1997

Budget to

Complete

Total

Program

2277

88

Product Development Organizations

International

SS-FP

Consultants, Inc.

Support and Management Organizations

ATCOM

Test and Evaluation Organizations - None

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

1967

58

2025

309

30

339

2290

83

Project D461

Page 41 of 41 Pages

Exhibit R-3 (PE 0604804A)

991

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									
5 - Engineering and Manufacturing Development		0604805A Command, Control, Communications Systems - Engineering Development									
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost		11751	13063	9796	2716	2693	0	0		Continuing	
D097	C3I Interoperability Network Activity	1807	1734	1715	1704	1684	0	0		10478	
D098	Tactical Radio Accessories	0	189	569	531	529	0	0	1060	4811	
D282	SINGGARS-V Engineering Development	4139	7191	7031	0	0	0	0	0	20073	
D485	C4I Interoperability Standardization and Certification	826	484	481	481	480	0	0	0	2752	
D488	Tactical Net Radio Communications	4979	3465	0	0	0	0	0	Continuing	Continuing	
<p>Mission Description and Budget Item Justification: Supports the Army Enterprise Strategy to achieve interoperability within the Army and with the Joint/Combined forces. This program includes Engineering and Manufacturing Development (EMD), interoperability evaluation of Army command, control, communications and intelligence (C3I) systems and equipment, and the supporting interoperability facilities. Also included is engineering development of life-cycle capability to develop, test, and maintain interoperability, and support an interoperability development and evaluation process consisting of an Army interoperability board and technical management to ensure maximum horizontal and vertical integration for Army battlefield digitization. Also included is the Army portion of engineering development efforts in support of the Combat Survivor Evader Locator System (CSEL). This includes the Single Channel Ground and Airborne Radio System (SINGGARS) product improvements identified in the SINGGARS System Improvement Plan; the Frequency Hopping Multiplexer (FH MUX) which allows multiple radios to operate on one antenna for reduced visual signature and rapid transportability and set-up; and follow-on programs to demonstrated technologies evolving from Wireless Network Access, Communications Network Planning and Management and initiatives to establish a Multiband Radio Integrated testbed. The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition process and are therefore correctly placed in Budget Activity 5.</p>											

Page 1 of 18 Pages

Exhibit R-2 (PE 0604805A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604805A Command, Control, Communications

Systems - Engineering Development

PROJECT

D097

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D097 C3I Interoperability Network Activity	1807	1734	1715	1704	1684	0	0	0	10478

A. Mission Description and Budget Item Justification : Project D097 - C3I Interoperability Network Activity: The ability to electronically link geographically dispersed command, control, communications, computers and intelligence elements whether "stand alone" or embedded within a weapons platform has been endorsed by senior OSD and DA officials. This suite of distributed communication sites and services (Army Interoperability Network - AIN), provides the communications infrastructure capability to develop, test, and maintain interoperability and support a continuous life-cycle interoperability development and evaluation process through remote access to the actual C4I systems and test evaluation facilities. The AIN, is a nationwide network "linking the world of C4I" through virtual relocation of remote C3I/EW systems, labs/testbeds, field sites and Battle Labs. Together, the AIN and Digital Integrated Lab (DIL) support affordable continuous sustainment and modernization of Army C4I/EW systems for the warfighter and Force XXI modernization, enabling CECOM RDEC to engineer solutions replicating digital battlefield environments to support Advanced Technology Demonstrations, Advanced Warfighting Experiments, realistic evaluations of new tactics, doctrine, operational concepts, and the interoperability certifier role for the Army digitization effort.

Acquisition Strategy: The efforts funded in this project are non-system specific, therefore no acquisition strategy is provided.

FY 1995 Accomplishments:

- 609 Provided over 2500 test-days of testing support for PEOs, Pms, Battle Labs , DIL, etc. to achieve systems Army/Joint interoperability C4I certification testing and DOD policy
- 281 Essential AIN/DIL infrastructure modernization (fiber optics, ATM switching, wideband dipphase interfaces)
- 428 Developed/installed new remote sites (TRW/Appique, SRI, Ft Leavenworth BCBL. DIL)
- 344 Sustained nationwide network operations
- 115 Developed evolutionary test support capabilities required to support Task Force XXI (SINGARS SIP, EPLRS and COMSEC interfaces)
- 30 Developed Rapid deployment AIN video teleconferencing (VTC) communications package for remote sites.
- Total 1807

FY 1996 Planned Program:

- 310 Enhance AIN Block-1 capabilities (portable LOS/satellite/VTC nodes) to support Task Force initiatives/sites.
- 559 Provide support for Task Force XXI to achieve systems Army/Joint interoperability C4I certification testing and DOD policy objectives
- 117 Essential AIN/DIL infrastructure modernization (network design tool, network display).

Project D097

Page 2 of 18 Pages

Exhibit R-2 (PE 0604805A)

993

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE	March 1996	D097
5 - Engineering and Manufacturing Development		0604805A Command, Control, Communications Systems - Engineering Development	
FY 1996 Planned Program: (continued)			
• 254 Develop/ install new remote sites			
• 350 Sustain nationwide network operations			
• 100 Develop evolutionary test support capabilities required to support DIL, Task Force XXI & user interfaces			
• 39 SBIR/STTR			
• 5 Revised Economic Assumption - Not Available for execution			
Total	1734		
FY 1997 Planned Program:			
• 150 Enhance AIN protocol test capabilities to support Force XXI requirements			
• 650 Provide support for Task Force XXI to achieve systems Army/Joint interoperability C4I certification testing and DOD policy objectives			
• 150 Essential AIN/DIL infrastructure modernization			
• 290 Provide compliance and interoperability testing support for Force XXI and Force XXI system implementations			
• 375 Sustain nationwide network operations			
• 100 Develop evolutionary test support capabilities required to support DIL, Task Force XXI & user interfaces			
Total	1715		
B. Project Change Summary			
Previous President's Budget (FY 1996)	FY 1995	FY 1996	FY 1997
Appropriated Amount (FY 1995)	1834	1782	1776
Adjustments to FY 1995	1811		
	-4		
Appropriated Amount (FY 1996)		1751	
Adjustments to FY 1996		-17	
Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget			-61
Current President's Budget Submit	1807	1734	1715
C. Other Program Funding Summary: There are no other related RDT&E or other appropriation efforts.			
D. Schedule Profile: The efforts funded in this project are non-system specific, therefore no milestones are provided.			
Project D097	Page 3 of 18 Pages	Exhibit R-2 (PE 0604805A)	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604805A Command, Control, Communications

D097

Systems - Engineering Development

	FY 1995	FY 1996	FY 1997
A. <u>Project Cost Breakdown</u>			
Contractual Engineering Support	1004	1048	1170
Government Engineering Support	480	350	350
Development Test and Evaluation	281	300	150
Training	12	10	10
Travel	30	26	35
Total	1807	1734	1715

B. Budget Acquisition History and Planning Information: N/A

Project D097

Page 4 of 18 Pages

Exhibit R-3 (PE 0604805A)

995

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604805A Command, Control, Communications Systems - Engineering Development								D098	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D098	Tactical Radio Accessories	0	189	569	531	529	0	0	1060	4811	
<p>A. Mission Description and Budget Item Justification: Project D098 - Tactical Radio Accessories: In FY 96, this project will provide for development efforts for the Combat Survivor Evader Locator System (CSEL), a joint program led by the Air Force. This program will provide service, joint, and/or composite operational recovery rescue forces with the capability to pinpoint the location of and establish communication with downed personnel in need of extraction from hostile territories. The CSEL system will include the capability to pass data directly into the standard warfighter command, control, communications, computer, and intelligence (C4I) systems envisioned by the C4I for the Warrior Concept. The user's equipment will consist of a small hand-held unit used for geospositioning, Over the Horizon data communications, and two-way Line of Sight voice communications.</p> <p>Acquisition Strategy: The joint Air Force led acquisition strategy is to pursue a modified Non-Developmental Item (NDI) approach for the hand-held unit and award a production contract beginning in FY 99.</p> <p>FY 1995 Accomplishments: No planned Program.</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 189 Support Air Force development efforts on the CSEL program <p>Total 189</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 569 Support Air Force development efforts on the CSEL program <p>Total 569</p>											

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
D098

5 - Engineering and Manufacturing Development

0604805A Command, Control, Communications
Systems - Engineering Development**B. Project Change Summary**

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustment to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

0

FY 1996

195

FY 1997

597

191

-2

-28

569

Change Summary Explanations:

Funding: FY 96 - (-2) the portion of this program that has been proposed for rescission.

FY97 - (28) is due to revised inflation rates

C. Other Program Funding SummaryARMY, OPA2 B03200, Combat Survivor Evader
Locator (CSEL)To
Compl
0
Total
Cost
81559

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2001

FY 2001

FY 2001

FY 2001

FY 2001

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2001

FY 2001

FY 2001

D. Schedule Profile

CSEL Program, Milestone I

CSEL Program Milestone II

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2001

FY 2001

FY 2001

FY 2001

FY 2001

FY 2001

FY 2001

FY 2001

FY 2001

FY 2001

FY 2001

FY 1995

FY 1996

FY 1997

FY 1998

FY 1999

FY 2000

FY 2001

FY 2001

FY 2001

FY 2001

1

2

3

4

1

2

3

4

1

2

3

4

1

2

3

4

X

X

X

X

X

X

X

X

X

X

X

Project D098

Page 6 of 18 Pages

Exhibit R-2 (PE 0604805A)

997

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE
	March 1996

Exhibit R-3 (PE 0604805A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604805A Command, Control, Communications

PROJECT

D282

Systems - Engineering Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D282 SINGGARS-V Engineering Development	4139	7191	7031	0	0	0	0	0	20073

A. Mission Description and Budget Item Justification: Project D282 - SINGGARS-V Engineering Development: This program provides for analysis and implementation of overall product improvements to the SINGGARS Combat Net Radio. Product improvements included are Global Positioning System (GPS) interfaces, Airborne Battlefield Combat Identification System (BCIS), Forward Error Correction (FEC) (data transmission enhancement techniques), improved data capability, weight reduction (to include a Lightweight Receiver-Transmitter, Battery Box and Vehicular Appliqué), MANPRINT (ease of operations), vehicular system re-engineering, improved electronic counter-counter measure (ECCM) performance and switched system dial up interfacing. Program provides simplified operations, improved performance of existing capabilities, new operational capabilities and reduced life cycle costs.

Acquisition Strategy: : The Lightweight Receiver-Transmitter and associated items planned development design products will be used by competitive producers as a part of the anticipated FY97 production competition of the SINGGARS radio and support TFFXI initiative.

FY 1995 Planned Program:

- 300 Initiated design feasibility study for an ITT SINGGARS Lightweight radio as part of the planned SINGGARS program
- 300 Initiated design feasibility study for a General Dynamics (GD) SINGGARS Lightweight radio as part of the planned SIP program
- 2135 SIP Engineering Support
- 1200 Initiated development of the BCIS (1204)
- 204 Program Management Support
- 4139
- Total

FY 1996 Planned Program:

- 156 Airborne BCIS Demonstration
- 3000 Initiate development effort for ITT SIP Half Size Radio
- 3000 Initiate development effort for GD SIP Half Size Radio
- 60 Program Management Support
- 795 TFFXI Support
- 160 SBIR/STTR
- 20 Revised Economic Assumption - Not Available for execution
- Total
- 7191

Project D282

Page 8 of 18 Pages

Exhibit R-2 (PE 0604805A)

999

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996																																								
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																									
5 - Engineering and Manufacturing Development	0604805A Command, Control, Communications Systems - Engineering Development	D282																																									
<p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 3250 Complete development effort for ITT SIP halfsize radio • 3250 Complete development effort for GD SIP halfsize radio • 531 Complete design verification testing/demonstrations for both ITT and GD halfsize radios <p>Total 7031</p>																																											
<p>B. Project Change Summary</p> <p>Previous President's Budget (FY 1996)</p> <table border="1"> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> </tr> </thead> <tbody> <tr> <td>Appropriated Amount (FY 1995)</td> <td>4439</td> <td>7393</td> <td>7280</td> </tr> <tr> <td>Adjustments to FY 1995</td> <td>-300</td> <td></td> <td></td> </tr> <tr> <td>Appropriated Amount (FY 1996)</td> <td></td> <td>7264</td> <td></td> </tr> <tr> <td>Adjustments to FY 1996</td> <td></td> <td>-73</td> <td></td> </tr> <tr> <td>Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget</td> <td></td> <td></td> <td>-249</td> </tr> <tr> <td>Current President's Budget Submit</td> <td>4139</td> <td>7191</td> <td>7031</td> </tr> </tbody> </table> <p>Change Summary Explanation: FY 1995 - Funds reprogrammed to D488. FY 1996 - (-73) the portion of this program that has been proposed for rescission. FY 1997 - (-249) due to revised inflation rates</p>					FY 1995	FY 1996	FY 1997	Appropriated Amount (FY 1995)	4439	7393	7280	Adjustments to FY 1995	-300			Appropriated Amount (FY 1996)		7264		Adjustments to FY 1996		-73		Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget			-249	Current President's Budget Submit	4139	7191	7031												
	FY 1995	FY 1996	FY 1997																																								
Appropriated Amount (FY 1995)	4439	7393	7280																																								
Adjustments to FY 1995	-300																																										
Appropriated Amount (FY 1996)		7264																																									
Adjustments to FY 1996		-73																																									
Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget			-249																																								
Current President's Budget Submit	4139	7191	7031																																								
<p>C. Other Program Funding Summary</p> <table border="1"> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> <th>FY 1998</th> <th>FY 1999</th> <th>FY 2000</th> <th>FY 2001</th> <th>To</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Army, OPA2 SSN:B00500</td> <td>310214</td> <td>327082</td> <td>271823</td> <td>284087</td> <td>14419</td> <td>14713</td> <td>0</td> <td>Compl</td> <td>Cost</td> </tr> <tr> <td>Army, OPA2 SSN:J30500</td> <td>20818</td> <td>12366</td> <td>12117</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>cont</td> <td>cont</td> </tr> <tr> <td>Army, OPA2, SSN: Z16800</td> <td>13718</td> <td>13705</td> <td>13556</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>cont</td> <td>cont</td> </tr> </tbody> </table>					FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total	Army, OPA2 SSN:B00500	310214	327082	271823	284087	14419	14713	0	Compl	Cost	Army, OPA2 SSN:J30500	20818	12366	12117	0	0	0	0	cont	cont	Army, OPA2, SSN: Z16800	13718	13705	13556	0	0	0	0	cont	cont
	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total																																		
Army, OPA2 SSN:B00500	310214	327082	271823	284087	14419	14713	0	Compl	Cost																																		
Army, OPA2 SSN:J30500	20818	12366	12117	0	0	0	0	cont	cont																																		
Army, OPA2, SSN: Z16800	13718	13705	13556	0	0	0	0	cont	cont																																		

Project D282

Page 9 of 18 Pages

Exhibit R-2 (PE 0604805A)

1000

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		DATE							
5 - Engineering and Manufacturing Development		March 1996							
PE NUMBER AND TITLE		PROJECT							
0604805A Command, Control, Communications Systems - Engineering Development		D282							
D. Schedule Profile		FY 1996							
		FY 1997							
		1	2	3	4	1	2	3	4
ECP Cut In to Ground Production			X*						
Award Airborne SIP Development			X*						
Contract									
Complete Design Feasibility Study on									
Lightweight Radio									
Award Downsize Development Contracts									
ECP Cut In to Airborne Production									
Exercise Downsize Development Contract									
Option									
* Milestone completed.									

Project D282

Page 10 of 18 Pages

Exhibit R-2 (PE 0604805A)

1001

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE
	March 1996

Exhibit R-3 (PE 0604805A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604805A Command, Control, Communications

D485

Systems - Engineering Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D485 C4I Interoperability Standardization and Certification	826	484	481	481	480	0	0	0	2752

A. Mission Description and Budget Item Justification C4I Interoperability Standardization and Certification: The Army Enterprise Strategy, DOD 4630.5, DODI 4630.8, C4I for the Warrior, and CJSCI 6212.01, mandate the establishment and sustainment of interoperability between Army C4I systems, and within the Army and Joint/Allied C4I communities. This includes operation of the Army board to synergize and integrate the Army's interoperability certification testing and analysis, and configuration management functions. Provide the Army focal point for the review, staffing, coordination and development of Army positions for the interface interoperability standards and specifications. Direct the integration of the Army systems' requirements and operational concepts documents with the joint standards and interface documents. Included is the Army's participation in Joint/Allied and intra-Army interoperability certification testing and the Army's representation in the Joint/Allied Configuration Management Process.

Acquisition Strategy: The efforts funded within this project are non-system specific, therefore no Acquisition Strategy is provided.

FY 1995 Accomplishments:

- 626 Prepared, coordinated, evaluated, processed and approved interface change proposals (ICPs) for Tactical Digital Information Link (TADIL) and U.S. Message Text Format (USMTF) message standards through formal Army & Joint/Allied configuration management processes.
- 200 Continued to implement Army Five Year Interoperability Assurance Plan (FYIAP) to manage Army Interoperability testing requirements
- Total 826

FY 1996 Planned Program:

- 123 Continuation of Army /Joint Certification Testing
- 200 Staff, consolidate, and formulate Army Interface change proposals for Variable Message Format (VMF), TADIL, and USMTF
- 148 Review certification test results and represent the Army at joint test meetings
- 11 SBIR/STTR
- 2 Revised economic assumption - not available for execution
- Total 484

Project D485

Page 12 of 18 Pages

Exhibit R-2 (PE 0604805A)

1003

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996																																
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																	
5 - Engineering and Manufacturing Development	0604805A Command, Control, Communications Systems - Engineering Development	D485																																	
<p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 120 Continuation of Army certification testing 200 Staff, consolidate, and formulate Army Interface change proposals for VMF, TADIL, and USMTF 161 Review certification test results and represent the Army at joint test meetings <p>Total 481</p>																																			
<p>B. Project Change Summary</p> <table border="1"> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget (FY 1996)</td> <td>76</td> <td>498</td> <td>498</td> </tr> <tr> <td>Appropriated Amount (FY 1995)</td> <td>76</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to FY 1995</td> <td>750</td> <td></td> <td></td> </tr> <tr> <td>Appropriated Amount (FY 1996)</td> <td></td> <td>489</td> <td>498</td> </tr> <tr> <td>Adjustments to FY 1996</td> <td></td> <td>-5</td> <td>-17</td> </tr> <tr> <td>Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Current President's Budget Submit</td> <td>826</td> <td>484</td> <td>481</td> </tr> </tbody> </table>					FY 1995	FY 1996	FY 1997	Previous President's Budget (FY 1996)	76	498	498	Appropriated Amount (FY 1995)	76			Adjustments to FY 1995	750			Appropriated Amount (FY 1996)		489	498	Adjustments to FY 1996		-5	-17	Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget				Current President's Budget Submit	826	484	481
	FY 1995	FY 1996	FY 1997																																
Previous President's Budget (FY 1996)	76	498	498																																
Appropriated Amount (FY 1995)	76																																		
Adjustments to FY 1995	750																																		
Appropriated Amount (FY 1996)		489	498																																
Adjustments to FY 1996		-5	-17																																
Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget																																			
Current President's Budget Submit	826	484	481																																
<p>Change Summary Explanation:</p> <p>FY 1995 - Funding: Increase (+750K) to support Interface Change Proposals for TADIL and USMTF message standards and certification testing.</p> <p>FY 1996 - (-5) the portion of this program that has been proposed for rescission.</p> <p>FY 1997 - (-17) due to revised inflation rates.</p>																																			
<p>C. Other Program Funding: There are no other related RDT&E or other Appropriation efforts.</p>																																			
<p>D. Schedule Profile: The efforts funded are non-system specific, therefore no Milestones are provided.</p>																																			

Project D485

Page 13 of 18 Pages

Exhibit R-2 (PE 0604805A)

1004

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

**0604805A Command, Control, Communications
Systems - Engineering Development**

D485

A. Project Cost Breakdown

Government Engineering

Total

FY 1995

826

826

FY 1996

484

484

FY 1997

481

481

B. Budget Acquisition History and Planning Information: N/A

Project D485

Page 14 of 18 Pages

Exhibit R-3 (PE 0604805A)

1005

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604805A Command, Control, Communications Systems - Engineering Development								D488	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D488	Tactical Net Radio Communications	4979	3465	0	0	0	0	0	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Tactical Net Radio Communications: Develops the Frequency Hopping Multiplexer which allows multiple radios to operate on one antenna for reduced visual signature and rapid transportability and set-up. Performs procedural interoperability testing and provides the Army's gateway to interoperability test network for certification of Army C3I systems. Develops Wireless Network Access (WNA) to provide Comm interface to CHS host computers and transmission security for tactical operations. Provide for executive agent and requirements for test and evaluation of the Joint Task Force Comm Planning and Management System.</p> <p>In FY 96, Frequency Hopping Multiplexer (FH MUX) preproduction hardware fabrication will be finalized with emphasis on models and qualification testing. In support of Task Force XXI (TFXXI) analyses will be performed to mitigate cosite interference amongst various radios and frequency allocations assigned. Support will focus on communication systems engineering of tactical radios to mitigate platform interference and provide for maximum communication ranges. The CECOM Mobile Test Van will be upgraded to provide for integration of evolving technologies. Efforts to establish an EMI/EMC cosite testbed and audio technology facility will be initiated. Applications for antenna technology will focus on developing wideband HF and VHF antennas which are structurally embedded in the airborne or ground mobile platform. Future Data Radio (FDR/Near-Term Digital Radio (NTDR)) will be added into the Digital Integrated Lab (DIL) network, for demonstration and experimentation purposes.</p> <p>Acquisition Strategy: The acquisition strategy for the FH MUX is to award a sole source contract for up to 50 FH MUX Pre-Production Qualification Test (PPQT) model units to Xetron Corporation, Cincinnati, OH, the current developer of the FHMUX. This contract is an essential preparatory phase to the planned full rate production contract scheduled for 3QFY96 and will provide substantial reduction in production risk.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 4829 Completed pilot (pre-production) model fabrication • 30 Conducted operational test on the FHMUX • 120 Conducted design review Total 4979 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 552 FH MUX Preproduction Hardware Fabrication • 648 Program Management, design review, test & evaluation, data support for Pre-production Qualification Testing (PPQT) for the FHMUX 											

Project D488

Page 15 of 18 Pages

Exhibit R-2 (PE 0604805A)

1006

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604805A Command, Control, Communications
Systems - Engineering Development

D488

FY 1996 Planned Program: (continued)

- 420 Develop application of land and airborne structurally embedded antennas
- 704 Integration of FDR to NTDR into DIL
- 100 Initiate audio lab upgrade
- 370 Initiate Co-site EMI/EMC testbed
- 100 Mobile test van upgrades & equipment integration
- 220 Tactical Radio integration support to TFXXI
- 200 Frequency allocation & cosite analysis support to Task Force XXI
- 70 Enhanced testing of interference cancellation technologies at EPG
- 72 SBIR/STTR
- 9 Revised economic assumption - not available for execution
- Total 3465

FY 1997 Planned Program: No funding in FY 1997.

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	4679	3564	3691
Appropriated Amount (FY 1995)	4679		
Adjustments to FY 1995	300		
Appropriated Amount (FY 1996)		3501	
Adjustments to FY 1996		-36	
Adjustment to Budget Year (FY 1997) since FY 1996 President's Budget			-3691
Current President's Budget Submit	4979	3465	0

Change Summary Explanation:

Funding: FY 1995 - Funds (\$300K) Reprogrammed from D282.

FY 1996 - (-36) the portion of this program that has been proposed for rescission.

FY 1997 - (-3691) OSD realigned funding for higher priority efforts.

Project D488

Page 16 of 18 Pages

Exhibit R-2 (PE 0604805A)

1007

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604805A Command, Control, Communications Systems - Engineering Development								D488	
<u>C. Other Program Funding Summary</u>											
OPA2, SSN BA1205		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To	Total	
		0	24803	35743	0	0	0	0	0	Cost	84701
<u>D. Schedule Profile</u>											
FHMUX OT Complete		FY 1995			FY 1996			FY 1997			
1		2	3	4	1	2	3	4			
X*											
FHMUX J&A Approved			X*								
FHMUX AP Approved			X*								
Milestone III - FHMUX			X*								
FHMUX Production Award					X						
Delivery FHMUX PPQ Units								X			
* Milestone has been completed											

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604805A Command, Control, Communications

D488

Systems - Engineering Development

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Contractor Engineering Support	4734	1200	
Development Test and Evaluation	150	648	
Government Engineering Support		1596	
Miscellaneous	95	21	
Total	4979	3465	

B. Budget Acquisition History and Planning Information: Not Applicable

Project D488

Page 18 of 18 Pages

Exhibit R-3 (PE 0604805A)

1009

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE									
5 - Engineering and Manufacturing Development		0604807A Medical Materiel/Medical Biological Defense Equipment - Engineering Development									
	COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
	Total Program Element (PE) Cost	12458	4608	4794	4996	5098	6411	6361	0	Continuing	
D812	Military Human Immunodeficiency Virus (HIV) Vaccine and Drug-Engineering Development	6219	193	193	288	288	1910	1894		Continuing	
D832	Combat Medical Materiel-Engineering Development	1372	1546	1695	1736	1852	1825	1810		Continuing	
D834	Soldier System Protection-Engineering Development	0	876	884	919	927	914	908		Continuing	
D848	Medical Chemical Defense Life Support Materiel *	876	0	0	0	0	0	0	0	1126	
D849	Infectious Disease Drug and Vaccine-Engineering Development	3991	1993	2022	2053	2031	1762	1749		Continuing	
* Starting in FY 1996, funding has been consolidated into DOD PE 0605384BP in accordance with P.L. 103-160.											
Mission Description and Budget Item Justification: This engineering and manufacturing development program funds improved medical equipment and drugs essential to counteracting lethal and human performance degrading effects of chemical threats, infectious diseases and medical equipment essential to meeting medical requirements on the integrated battlefield with emphasis on decreased size/weight and high mobility, yet supporting large numbers of combat casualties. Additionally, foreign medical materiel may be procured for exploitation of advanced technology and development to meet Army medical defense goals. This program element supports the full-scale development of vaccines, prophylactic and therapeutic drugs, resuscitation fluids and drug products for Acquired Immune Deficiency Syndrome (AIDS). Starting in FY 1996, funding for chemical and biological defense medical research and development efforts (project D848) have been consolidated into DOD PE 0605384BP in accordance with P.L. 103-160. Additionally, the program element funds engineering and manufacturing development of medical equipment which provides protection against physiological, psychological or environmental factors which degrade physical performance. This includes engineering development of vision corrective devices for protective masks. This program is primarily managed by the U.S. Army Medical Research and Materiel Command. The projects in this Program Element support research efforts in the engineering and manufacturing development phase of the acquisition cycle and are therefore correctly placed in Budget Activity 5.											

Page 1 of 16 Pages

Exhibit R-2 (PE 0604807A)

* Starting in FY 1996, funding has been consolidated into DOD PE 0605384BP in accordance with P.L. 103-160.

Mission Description and Budget Item Justification: This engineering and manufacturing development program funds improved medical equipment and drugs essential to counteracting lethal and human performance degrading effects of chemical threats, infectious diseases and medical equipment essential to meeting medical requirements on the integrated battlefield with emphasis on decreased size/weight and high mobility, yet supporting large numbers of combat casualties. Additionally, foreign medical materiel may be procured for exploitation of advanced technology and development to meet Army medical defense goals. This program element supports the full-scale development of vaccines, prophylactic and therapeutic drugs, resuscitation fluids and drug products for Acquired Immune Deficiency Syndrome (AIDS). Starting in FY 1996, funding for chemical and biological defense medical research and development efforts (project D848) have been consolidated into DOD PE 0605384BP in accordance with P.L. 103-160. Additionally, the program element funds engineering and manufacturing development of medical equipment which provides protection against physiological, psychological or environmental factors which degrade physical performance. This includes engineering development of vision corrective devices for protective masks. This program is primarily managed by the U.S. Army Medical Research and Materiel Command. The projects in this Program Element support research efforts in the engineering and manufacturing development phase of the acquisition cycle and are therefore correctly placed in Budget Activity 5.

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY		PE NUMBER AND TITLE						DATE	PROJECT
5 - Engineering and Manufacturing Development		0604807A Medical Materiel/Medical Biological Defense Equipment - Engineering Development						March 1996	D812
	COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Total Cost
D812 Military Human Immunodeficiency Virus (HIV) Vaccine and Drug-Engineering Development		6219	193	193	288	288	1910	1894	Continuing
<p>A. Mission Description and Budget Item Justification: Project D812-Military Human Immunodeficiency Virus (HIV) Vaccine and Drug-Engineering Development: This project funds Congressionally mandated, militarily relevant HIV medical countermeasures. This provides for engineering and manufacturing development of sufficient candidate vaccines and drugs to permit large-scale field testing and education/training materials. Efforts are directed to answer militarily unique needs affecting manning, mobilization and deployment. The major contractor is Henry M. Jackson Foundation for the Advancement of Military Medicine., Rockville, MD.</p> <p>Acquisition Strategy: Test and evaluate commercially developed vaccine candidates in government managed trials.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 4046 Evaluated vaccines for protection against HIV-1. 783 Selected HIV vaccine products to test in Thailand field trials. 1390 Studied potential cohort populations to determine which group offers the best chance for success of a Phase III efficacy trial. <p>Total 6219</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 95 Identify cohorts for a Phase III test of a vaccine to prevent infection with HIV. 94 Conduct Phase I trials to evaluate vaccine products for transitioning to Phase III. 4 SBIR/STTR <p>Total 193</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 96 Develop and prepare cohorts for a Phase III test of a vaccine to prevent infection with HIV. 97 Conduct additional Phase I trials and begin Phase II trials and selected products to evaluate vaccine products for transitioning to Phase III. <p>Total 193</p>									

Project D812

Page 2 of 16 Pages

Exhibit R-2 (PE 0604807A)

1011

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
5 - Engineering and Manufacturing Development	0604807A Medical Materiel/Medical Biological Defense Equipment - Engineering Development	D812	
B. <u>Project Change Summary</u>			
Previous President's Budget Request (FY 1996)		FY 1995	FY 1996
Appropriated Amount (FY 1995)		6352	199
Adjustments to FY 1995		6219	199
Appropriated Amount (FY 1996)			195
Adjustments to FY 1996			-2
Adjustments to Budget (FY 1997) year since FY 1996			-6
Presidents Budget			193
Current Budget Submit For FY 1997		6219	193
C. <u>Other Program Funding Summary:</u> Not Applicable			
D. <u>Schedule Profile:</u> Multiple medical developmental products will advance through the various events throughout the FY.			

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604807A Medical Materiel/Medical Biological
Defense Equipment - Engineering Development

D812

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Test & Evaluation	6219	189	193
Product Development	0	0	0
Project Management	0	0	0
Total	6219	189	193

B. Budget Acquisition History and Planning InformationPerforming Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
<u>Product Development Organizations: None</u>										
<u>Support and Management Organizations</u>										
USAMMDA	NA	NA	NA	NA	NA	0	0	0	0	0
Contracts	NA	NA	NA	NA	NA	0	0	0	0	0
<u>Test and Evaluation Organizations</u>										
Army Laboratories	NA	NA	NA	NA	NA	0	0	0	0	0
Contracts	NA	NA	NA	NA	NA	0	0	0	0	0
H.M. Jackson Foundation	C/Coop Agmt	Apr 93	125000	125000	38042	6219	189	193	Cont	44880

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

38042	6219	189	193	44880
38042	6219	189	193	44880

Project D812

Page 4 of 16 Pages

Exhibit R-3 (PE 0604807A)

1013

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604807A Medical Materiel/Medical Biological
Defense Equipment - Engineering Development

PROJECT

D832

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D832 Combat Medical Materiel-Engineering Development	1372	1546	1695	1736	1852	1825	1810	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D832-Combat Medical Materiel-Engineering Development: This project supports engineering and manufacturing development to field new and improved medical materiel essential for combat casualty care to reduce logistical support requirements and minimize loss from duty rates. The major contractor is the Guild Corp, Hilliard, OH.

Acquisition Strategy: Test and evaluate commercially developed materiel for hardening or other modification in government managed trials.

FY 1995 Accomplishments:

- 31 Reevaluated data and submitted to FDA a New Drug Application for Hypertonic Saline Dextran.
- 294 Awarded contract for prototype armored ambulance medical interior concepts.
- 294 Completed successful user testing of field medical oxygen generation and distribution system.
- 721 Supported the engineering development and user evaluation of telemedicine hardware and concepts for the treatment of combat casualties.
- 32 Funds will be reprogrammed for SBIR/STTR programs in accordance with the Small Business Innovation Research Program Reauthorization Act of 1992.

Total 1372

FY 1996 Planned Program:

- 117 Conduct milestone 3 In-Process Review of Hypertonic Saline Dextran.
- 741 Fabricate armored ambulance prototype and prepare specifications.
- 34 Monitor field medical oxygen generation and distribution system production contract.
- 333 Conduct technical and user evaluations of the intraosseous infusion device.
- 283 Support the engineering development and user evaluation of telemedicine hardware and concepts for the treatment of combat casualties.
- 4 Revised Economic Assumption not available for execution.
- 34 SBIR/STTR

Total 1546

Project D832

Page 5 of 16 Pages

Exhibit R-2 (PE 0604807A)

1014

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PROJECT

5 - Engineering and Manufacturing Development

**0604807A Medical Materiel/Medical Biological
Defense Equipment - Engineering Development**

D832

FY 1997 Planned Program:

- | | | |
|-------|------|--|
| • | 189 | Conduct additional clinical trials and submit a supplemental New Drug Application for Hypertonic Saline Dextran. |
| • | 62 | Monitor field medical oxygen generation and distribution system production and fielding. |
| • | 98 | Conduct technical and user testing of far forward suction apparatus. |
| • | 1346 | Conduct technical and user evaluations of EDM model of armored treatment and transport vehicle. |
| Total | 1695 | |

Total	1695
-------	------

B. Project Change Summary

Previous President's Budget Request (FY 1996)

Appropriated Amount (FY 1995)

Appropriated Amount (FY 1995)
Adjustments to FY 1995

Appropriated Amount (FY 1996)

Appropriated Amount (FY 1996)

Adjustments to Budget (FY 1997) year since FY 1996

Presidents Budget

Current Budget Submit For FY 1997

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile: Multiple medical developmental products will advance through the various events throughout the FY

	FY 1995		FY 1996		FY 1997	
1	2	3	1	2	3	4

Field Medical Oxygen Generation and Distribution System MLST 3

Intravenous Infusion Device MLST 3

X

Project D832

Page 6 of 16 Pages

1015

Exhibit R-2 (PE 0604807A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604807A Medical Materiel/Medical Biological
Defense Equipment - Engineering Development

D834

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
									Continuing
D834 Soldier System Protection-Engineering Development	0	876	884	919	927	914	908	Continuing	Continuing

A. Mission Description and Budget Item Justification: Project D834-Soldier System Protection-Engineering Development: This project supports engineering development of preventive medicine materiel, including devices, pharmacologicals and other tools, to provide protection, sustainment, and enhancement of the physiological and psychological capabilities of soldiers in the face of combat operations under all environmental conditions. Focus is on reduction in the incidence of personnel losses due to preventable disease and non-battle injuries through development of environmental and physiological performance monitors and other preventive medicine countermeasures. A major contractor is Stanford Research Institute, Palo Alto, CA.

Acquisition Strategy: Test and evaluate commercially developed materiel for hardening or other modification in government managed trials.

FY 1995 Accomplishments: Project not funded.

FY 1996 Planned Program:

- 854 Support the engineering development and user evaluation of telemedicine hardware and concepts for soldier protection.
- 3 Revised Economic Assumption not available for execution.
- 19 SBIR/STTR
- Total 876

FY 1997 Planned Program:

- 835 Support the engineering development and user evaluation of telemedicine hardware and concepts for soldier protection.
- 49 Demonstrate the efficacy of performance enhancing drugs.
- Total 884

Project D834

Page 8 of 16 Pages

Exhibit R-2 (PE 0604807A)

1017

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
5 - Engineering and Manufacturing Development	0604807A Medical Materiel/Medical Biological Defense Equipment - Engineering Development	D834	
B. Project Change Summary			
Previous President's Budget		FY 1995	FY 1997
Appropriated Amount (FY 1995)		0	915
Adjustments to FY 1995		0	
Appropriated Amount (FY 1996)			
Adjustments to FY 1996		885	
Adjustments to Budget (FY 1997) year since FY 1996		-9	-31
Presidents Budget			
Current Budget Submit/President's Budget		0	884
C. Other Program Funding Summary: Not Applicable			
D. Schedule Profile: Multiple medical developmental products will advance through the various events throughout the FY			

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
D834

5 - Engineering and Manufacturing Development

0604807A Medical Materiel/Medical Biological
Defense Equipment - Engineering Development

A. Project Cost Breakdown

Test & Evaluation	FY 1995	FY 1996	FY 1997
	0	0	45
Product Development	0	834	835
Project Management	0	20	4
Total		854	884

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Contract

Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
--------------------------------	--------------------------------	--------------------------	---------------------	--------------------	------------------------	---------	---------	---------	--------------------	---------------

Product Development Organizations

Contracts NA NA

Support and Management Organizations

USAMMDA NA NA

Test and Evaluation Organizations:

Army Labs NA NA

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

Project D834

Page 10 of 16 Pages

Exhibit R-3 (PE 0604807A)

1019

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996																							
BUDGET ACTIVITY		PE NUMBER AND TITLE									PROJECT																							
5 - Engineering and Manufacturing Development		0604807A Medical Materiel/Medical Biological Defense Equipment - Engineering Development									D848																							
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost																								
D848	Medical Chemical Defense Life Support Materiel *	876	0	0	0	0	0	0	0	1126																								
<p>A. Mission Description and Budget Item Justification: Project D848-Medical Chemical Defense Life Support Materiel: This project funds the development of medical materiel necessary to field an effective capability for medical defense against chemical agent threats facing U.S. forces in the field.</p> <p>Acquisition Strategy: Test and evaluate commercially developed materiel for hardening or other modification in government managed trials.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 52 Conducted extended stability testing of the medical aerosolized nerve agent antidote, convulsant antidote for nerve agents, and nerve agent pretreatment pyridostigmine. 824 Determined comparative safety and pharmacokinetics of pyridostigmine in males and females. <p>Total 876</p> <p>FY 1996 Planned Program: Project moved to DoD PE 0605384BP Project 848.</p> <p>FY 1997 Planned Program: Project moved to DoD PE 0605384BP Project MC5.</p> <p>B. Project Change Summary</p> <table border="0"> <tr> <td>Previous President's Budget Request (FY 1996)</td> <td>FY 1995</td> <td>FY 1996</td> <td>FY 1997</td> </tr> <tr> <td>Appropriated Value</td> <td>52</td> <td>0</td> <td>0</td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td>51</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Budget (FY 1997) year since FY 1996</td> <td>825</td> <td></td> <td></td> </tr> <tr> <td>Presidents Budget</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Current Budget Submit For FY 1997</td> <td>876</td> <td>0</td> <td>0</td> </tr> </table> <p>Change Summary Explanation:</p> <p>Funding: Funds were reprogrammed from Army PE 0603807, Project A993, to conduct studies on pyridostigmine bromide to address questions and concerns on drug interaction and gender related differences arising out of Operation Desert Storm.</p>											Previous President's Budget Request (FY 1996)	FY 1995	FY 1996	FY 1997	Appropriated Value	52	0	0	Adjustments to Appropriated Value	51			Adjustments to Budget (FY 1997) year since FY 1996	825			Presidents Budget				Current Budget Submit For FY 1997	876	0	0
Previous President's Budget Request (FY 1996)	FY 1995	FY 1996	FY 1997																															
Appropriated Value	52	0	0																															
Adjustments to Appropriated Value	51																																	
Adjustments to Budget (FY 1997) year since FY 1996	825																																	
Presidents Budget																																		
Current Budget Submit For FY 1997	876	0	0																															

Project D848

Page 11 of 16 Pages

Exhibit R-2 (PE 0604807A)

1020

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

**0604807A Medical Materiel/Medical Biological
Defense Equipment - Engineering Development**

PROJECT

D848

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile: Multiple medical developmental products will advance through the various events throughout the FY.

Project D848

Page 12 of 16 Pages

Exhibit R-2 (PE 0604807A)

1021

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT
BUDGET ACTIVITY										PE NUMBER AND TITLE		
5 - Engineering and Manufacturing Development										0604807A Medical Materiel/Medical Biological		
Defense Equipment - Engineering Development										D848		
										FY 1995	FY 1996	FY 1997
A. Project Cost Breakdown										824	0	0
Test & Evaluation										0	0	0
Product Development										52	0	0
Project Management										876		
B. Budget Acquisition History and Planning Information												
Performing Organizations												
Contractor or	Contract											
Government	Method/Type	Award or	Performing	Project	Total							
Performing	or Funding	Obligation	Activity	Office	Prior to							
Activity	Vehicle	Date	EAC	EAC	FY 1995	FY 1996	FY 1997					
Product Development Organizations												
Contracts	NA	NA	NA	NA	NA	0	0	0	Cont			
Support and Management Organizations												
USAMMDA	NA	NA	NA	NA	NA	52	0	0	Cont			
Contracts	NA	NA	NA	NA	NA	0	0	0	0			
Test and Evaluation Organizations												
Contracts	NA	NA	NA	NA	NA	824	0	0	Cont			
Government Furnished Property: None												
Subtotal Product Development										NA	0	0
Subtotal Support and Management										NA	52	0
Subtotal Test and Evaluation										NA	824	0
Total Project											876	

Project D848

Page 13 of 16 Pages

Exhibit R-3 (PE 0604807A)

1022

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY		PE NUMBER AND TITLE							DATE	PROJECT
5 - Engineering and Manufacturing Development		0604807A Medical Materiel/Medical Biological Defense Equipment - Engineering Development							March 1996	D849
COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D849 Infectious Disease Drug and Vaccine-Engineering Development	3991	1993	2022	2053	2031	1762	1749	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Project D849-Infectious Diseases Drug and Vaccine-Engineering Development: This project funds engineering and manufacturing development of sufficient candidate medical countermeasures to permit large-scale field testing and complete studies required for FDA licensure. Work performed in laboratories and among troop populations is directed to prevention, diagnosis, and treatment of viral, bacterial and parasitic diseases, so as to prevent casualties, sustain operational performance and minimize deaths and disability of armed forces during military operations.</p> <p>Acquisition Strategy: Test and evaluate in-house and commercially developed vaccine candidates in government managed trials to meet FDA requirements.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 1185 Completed Phase III study to prove efficacy of ETEC. • 928 Completed field study with whole cell/B subunit cholera vaccine. • 197 Performed clinical testing of lyophilized Tick-Borne Encephalitis vaccine. • 447 Conducted expanded Phase I/II trials of Chikungunya live vaccine, Argentina, Hantaan and Rift Valley live vaccines. • 850 Completed Phase III field study and submitted PLA for Hepatitis A inactive vaccine. • 384 Supported the engineering development and user evaluation of telemedicine hardware and concepts in the prevention, diagnosis and treatment of infectious diseases. <p>Total 3991</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 440 Submit a Product License Application for the whole cell cholera vaccine. • 592 Conduct field trials of Hantaan, Chikungunya, live Shigella flexneri and Enterotoxigenic E. coli whole cell, and Rift Valley Fever live vaccines. • 911 Conduct safety and efficacy tests of the antimalarial drug Azithromycin. • 6 Revised Economic Assumption not available for execution. • 44 SBIR/STTR <p>Total 1993</p>										

Project D849

Page 14 of 16 Pages

Exhibit R-2 (PE 0604807A)

1023

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE		
5 - Engineering and Manufacturing Development	0604807A Medical Materiel/Medical Biological Defense Equipment - Engineering Development		
PROJECT D849			
FY 1997 Planned Program:			
• 1051 Conduct field trials of malaria blood stage and Rift Valley Fever vaccines.			
• 971 Complete safety and efficacy testing of antimalarial drug Azithromycin.			
Total	2022		
B. Project Change Summary			
Previous President's Budget Request (FY 1996)		FY 1996	FY 1997
Appropriated Amount (FY 1995)	4390	2048	2093
Adjustments to FY 1995	4298		
	-307		
Appropriated Amount (FY 1996)		2013	
Adjustments to FY 1996		-20	
Adjustments to Budget (FY 1997) year since FY 1996			-71
Presidents Budget			
Current Budget Submit For FY 1997	3991	1993	2022
C. Other Program Funding Summary: Not Applicable			
D. Schedule Profile: Multiple medical developmental products will advance through the various events throughout the FY			
	FY 1995	FY 1996	FY 1997
	1 2 3	1 2 3	1 2 3 4
Cholera MLST 3a			
ETEC MLST 3a			
TBE MLST 3a		X	
Hepatitis A MLST 3			
Hantaan MLST 3a	X		
Chikungunya MLST 3a			X
Shigella flexneri MLST 3a		X	
			X

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
D849

5 - Engineering and Manufacturing Development

0604807A Medical Materiel/Medical Biological
Defense Equipment - Engineering DevelopmentA. Project Cost Breakdown

Test & Evaluation	FY 1995	FY 1996	FY 1997
	2302	1551	1543
Product Development	1433	55	0
Project Management	256	337	550
Total	3991	1943	2093

B. Budget Acquisition History and Planning InformationPerforming Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
Product Development Organizations	NA	NA	NA	NA	NA	1433	55	0	Cont	Cont
Contracts	NA	NA	NA	NA	NA	221	280	386	Cont	Cont
Support and Management Organizations	NA	NA	NA	NA	NA	35	57	164	Cont	Cont
USAMMDA	NA	NA	NA	NA	NA	219	292	323	Cont	Cont
Contracts	NA	NA	NA	NA	NA	883	1069	529	Cont	Cont
Test and Evaluation Organizations	NA	NA	NA	NA	NA	300	0	0	Cont	Cont
Army Laboratories	NA	NA	NA	NA	NA	900	190	620	Cont	Cont
Walter Reed Army Inst of Research	NA	NA	NA	NA	NA	1433	55	0	Cont	Cont
Contracts	NA	NA	NA	NA	NA	256	337	550	Cont	Cont
Navy Laboratories	NA	NA	NA	NA	NA	2302	1551	1472	Cont	Cont
Government Furnished Property: None						3991	1943	2022	Cont	Cont
Subtotal Product Development										
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project										

Project D849

Page 16 of 16 Pages

Exhibit R-3 (PE 0604807A)

1025

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE				
BUDGET ACTIVITY					March 1996				
PE NUMBER AND TITLE									
5 - Engineering and Manufacturing Development					0604808A Landmine Warfare/Barrier - Engineering Development				
COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	7077	6977	19731	22866	36637	19964	29209	Continuing	Continuing
D016 Mine Systems Engineering Development	6615	5096	5499	0	0	0	12155	Continuing	Continuing
D415 Mine Neutralization/Detection	462	1881	14232	22866	36637	19964	17054	Continuing	Continuing
<p>Mission Description and Budget Item Justification: This program element provides for engineering and manufacturing development of mine and countermine systems. Project D016, Mine Systems Engineering Development, provides for the increased tactical effectiveness and responsiveness of landmines by supporting the development of a minefield command and control system for the Wide Area Munition (WAM) and improved sensors that increase countermeasure resistance of Volcano mines which can be dispensed rapidly from helicopters, ground dispensers, artillery systems and tactical aircraft. Project D415, Mine Neutralization/Detection Engineering Development, is the engineering and manufacturing development for the Airborne Standoff Minefield Detection System (ASTAMIDS), Explosive Standoff Minefield Breacher (ESMB) and Handheld Stand-off Minefield Detection System (HSTAMIDS), and a product improvement to the Armored Vehicle Launched Mine Clearing Line Charge (AVLM). It provides a group of mutually supported mine detection and neutralization devices to counter a variety of threat mines, minefields and obstacles necessary for implementing the Army's Countermine Modernization Plan. This program element supports Engineering and Manufacturing Development and is, therefore, appropriately placed in Budget Activity 5.</p>									

Page 1 of 9 Pages

Exhibit R-2 (PE 0604808A)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604808A Landmine Warfare/Barrier - Engineering Development								D016	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D016	Mine Systems Engineering Development	6615	5096	5499	0	0	0	12155	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: Provides for engineering and manufacturing development of scatterable mines and new smart munitions.</p> <p>Acquisition Strategy: A command and control capability is being developed as a product improvement to Wide Area Munition (WAM) and will be incorporated into the WAM product improvement program.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 2408 Designed Control Unit and Communications Module for WAM Command and Control (C2) 2100 Designed Safe and Arm for WAM C2 2107 Performed WAM System Engineering/Integration and Modified Control Electronics <p>Total 6615</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 1150 Complete Radio Brassboard Design for WAM C2 2235 Complete Safe and Arm Design and Control Electronics Modifications for WAM C2 1583 Develop Software and Lab Test Units for WAM C2 114 SBIR/STTR 14 Revised Economic Assumptions not available for execution <p>Total 5096</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> 2130 Integrate, Assemble, Test and Complete Software Development for WAM C2 2720 Conduct field Demonstration and Engineering Verification for WAM C2 649 Qualify WAM C2 Prototype <p>Total 5499</p>											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0604808A Landmine Warfare/Barrier - Engineering D016

D016

[illegible]

Exhibit R-2 (PE 0604808A)

1028

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604808A Landmine Warfare/Barrier - Engineering

Development

PROJECT

D016

D. Schedule Profile

FY 1996

FY 1997

4

3

2

1

4

X

Develop Software and Lab Test Units for
WAM C2

Integrate, Assemble Test and Complete

Software Development for WAM C2

Conduct Field Demonstration and

Engineering Verification for WAM C2

Qualify WAM C2 Prototype

* Milestone Completed

Project D016

Page 4 of 9 Pages

Exhibit R-2 (PE 0604808A)

1029

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE	March 1996	PROJECT
BUDGET ACTIVITY	PE NUMBER AND TITLE		PROJECT		
5 - Engineering and Manufacturing Development	0604808A Landmine Warfare/Barrier - Engineering Development		D016		
A. Project Cost Breakdown	FY 1995	FY 1996	FY 1997		
Hardware Development	5955	4056	4374		
Test & Evaluation		275	475		
Government Engineering & Support	500	450	475		
Government Program Support	160	150	175		
SBIR/STTR		114			
Revised Economic Adjustment		51			
Total	6615	5096	5499		
B. Budget Acquisition History and Planning Information Not Applicable					

Project D016

Page 5 of 9 Pages

Exhibit R-3 (PE 0604808A)

1030

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604808A Landmine Warfare/Barrier - Engineering Development D415

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D415 Mine Neutralization/Detection	462	1881	14232	22866	36637	19964	17054	Continuing	Continuing

A. Mission Description and Budget Item Justification: This project provides engineering and manufacturing development for the Airborne Standoff Minefield Detection System (ASTAMIDS), Explosive Standoff Minefield Breacher (ESMB), Handheld Stand-off Minefield Detection System (HSTAMIDS), Interim Vehicle Mounted Mine Detector (IVMMD) and a product improvement to the Armored Vehicle Launched MICLIC (AVLM). It provides a group of mutually supported mine detection and neutralization devices to counter a variety of threat mines, minefields and obstacles necessary for implementing the Army's Countermine Modernization Plan.

Acquisition Strategy: ASTAMIDS and IVMMD - RDTE with sole source production award to RDTE contractor; ESMB - RDTE with competitive production contract.

FY 1995 Accomplishments:

- 350 Conducted Technical/Operational Testing of Mounting Device for AVLM
- 112 Prepared Safety Assessment Report and Documented Design of AVLM Mounting Device
- Total 462

FY 1996 Planned Program:

- 1145 Award Contract and Procure Test Hardware for Interim IVMMD
- 689 Conduct Test and Evaluation for IVMMD
- 42 SBIR/STTR
- 5 Revised Economic Adjustment not available for execution
- Total 1881

FY 1997 Planned Program:

- 967 Conduct Milestone II Review for ASTAMIDS
- 9135 Conduct Source Selection and Initiate Engineering Development Design for ASTAMIDS
- 3930 Procure Long Lead Sensor and Processor Components for ASTAMIDS Prototypes
- 200 Conduct Milestone III Review for IVMMD
- Total 14232

Project D415

Page 6 of 9 Pages

Exhibit R-2 (PE 0604808A)

1031

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				D415
5 - Engineering and Manufacturing Development		0604808A Landmine Warfare/Barrier - Engineering Development				
B. Project Change Summary		F 1995	FY 1996	FY 1997		
Previous President's Budget (FY 1996)		932	1990	14735		
Appropriated Amount (FY 1995)		912				
Adjustment to FY 1995		-450				
Appropriated Amount (FY 1996)			1900			
Adjustment to FY 1996			-19			
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget				-503		
Current Budget Estimate Submit for FY 1997		462	1881	14232		
Change Summary Explanation:						
Funding: FY 1995 - below threshold reprogramming to PE 0603619A for APOBS.						
C. Other Program Funding Summary		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
RDTE, 0603619A.D606, Countermine/Barrier		23378	31942	16464	7655	5372
Adv Dev						
OPA3, M80101, IVMMMD					6457	4363
OPA3, S11500, ASTAMIDS						
OPA3, M80300, ESMB						
D. Schedule Profile		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
Conducted Technical/Operational Testing of AVL M Mounting Kit		1 2 3 X*	4 1 2 3	4 1 2 3	4 1 2 3	4
Completed Design of AVL M Mounting Kit			X*			
Award Contract and Procure Test Hardware for IVMMMD			X			
Conduct Test and Evaluation for IVMMMD						
Conduct Milestone III Review IVMMMD						
Project D415						
Page 7 of 9 Pages						
Exhibit R-2 (PE 0604808A)						

1032

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604808A Landmine Warfare/Barrier - Engineering Development

D415

D. Schedule Profile

	FY 1995			FY 1996			FY 1997				
1	2	3	4	1	2	3	4	1	2	3	4

Conduct Milestone II Review for

ASTAMIDS

Conduct Source Selection and Initiate

Engineering Development Design for

ASTAMIDS

Procure Long Lead Sensor and Processor

Components for ASTAMIDS Prototypes

* Milestone Completed

Project D415

Page 8 of 9 Pages

Exhibit R-2 (PE 0604808A)

1033

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
5 - Engineering and Manufacturing Development	0604808A Landmine Warfare/Barrier - Engineering Development	D415	
A. Project Cost Breakdown			
Primary Hardware Development	FY 1995	FY 1996	FY 1997
Test and Evaluation	300	1097	9635
Government Engineering and Support	112	190	
Government Program Management	50	449	3997
SBIR/STTR		100	600
Revised Economic Adjustment		42	
Total	462	19	14232
B. Budget Acquisition History and Planning Information Not Applicable			

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE September 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604814A Sense and Destroy Armor Munition -
Engineering Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	40475	16164	10149	22575	21000	13000	2000	0	1005933
D2ST SADARM Operational Test	0	0	309	5575	0	0	0	0	5884
D644 Generic SADARM Engineering Development	40475	16164	9840	17000	21000	13000	2000	0	1000049

Mission Description and Budget Item Justification: Sense and Destroy Armor (SADARM) munitions will provide an enhanced fire/counterfire capability for 155mm howitzer delivery systems. SADARM can attack targets well beyond the Forward Line of Troops (FLOT) in a fire-and-forget mode. SADARM can be used in day and night, inclement weather and degraded battlefield conditions.

These capabilities will be enhanced by the SADARM Product Improvement (PI) program which begins in FY 1997. The PI SADARM munition will have an enlarged footprint, permitting each submunition to cover approximately three times the area of the baseline SADARM, improved infrared sensor to see targets at higher altitudes, and a combined effects (multi-frag) warhead permitting it to kill more targets. As a result, the PI SADARM is more effective against its primary target (self-propelled howitzers) and secondary targets (light and heavy missile launchers, surface-to-air missile sites, air defense units, surface-to-surface missiles and towed howitzers). Upon ejection from the 155mm projectile, the PI SADARM submunitions deploy and descend toward the ground at a constant velocity and spin rate. The submunitions contain an improved sensing mechanism which combines a dual-mode millimeter wave sensor with an improved infrared sensor array. If a target is present within the scan area (approximately 12 football fields), the improved sensor detects its presence and fires the new combined effects warhead which consists of a primary penetrator with a number of smaller penetrators traveling in the same controlled, predicted direction and engaging the target.

The projects within this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are, therefore, correctly placed in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	September 1995																											
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT																												
5 - Engineering and Manufacturing Development		0604814A Sense and Destroy Armor Munition - Engineering Development								D2ST																												
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost																												
D2ST SADARM Operational Test		0	0	309	5575	0	0	0	0	5884																												
<p>A. Mission Description and Budget Item Justification: This project finances the direct costs of planning and conducting operational test and evaluation of the Sense and Destroy Armor (SADARM) munitions by the Operational Test and Evaluation Command (OPTEC). SADARM is an Acquisition Category (ACAT) ID system with an Initial Operational Test and Evaluation (IOTE) in FY 98. Operational testing is conducted under conditions that approximate, as closely as possible, those encountered in actual combat with typical user troops trained to employ the system. The OPTEC provides Army leadership with an independent test and evaluation of effectiveness and suitability of the system. Project D2ST is restructured from SSN E66300, Projectile, Artillery, 155mm SADARM, M898, Procurement Ammunition, Army, and is not a new start.</p> <p>FY 1995 Accomplishments: No FY 1995 planned program</p> <p>FY 1996 Planned Program: No FY 1996 planned program</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 309 Planning and preparation for test during the 3QTR FY 98 IOTE <p>Total 309</p> <p>B. Project Change Summary</p> <table> <tr> <td>Previous President's Budget (FY 1996)</td> <td>FY 1995</td> <td>FY 1996</td> <td>FY 1997</td> </tr> <tr> <td>Appropriated Amount (FY 1995)</td> <td>0</td> <td>0</td> <td>3626</td> </tr> <tr> <td>Adjustments to FY 1995</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>Appropriated Amount (1996)</td> <td></td> <td>0</td> <td></td> </tr> <tr> <td>Adjustment to FY 1996</td> <td></td> <td>0</td> <td></td> </tr> <tr> <td>Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget</td> <td></td> <td></td> <td>-3317</td> </tr> <tr> <td>Current Budget Submit/President's Budget</td> <td>0</td> <td>0</td> <td>309</td> </tr> </table> <p>Change Summary Explanation: The testing will be conducted in FY 1998 rather than FY 1997 and funds were therefore not required in FY 1997.</p>											Previous President's Budget (FY 1996)	FY 1995	FY 1996	FY 1997	Appropriated Amount (FY 1995)	0	0	3626	Adjustments to FY 1995	0			Appropriated Amount (1996)		0		Adjustment to FY 1996		0		Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-3317	Current Budget Submit/President's Budget	0	0	309
Previous President's Budget (FY 1996)	FY 1995	FY 1996	FY 1997																																			
Appropriated Amount (FY 1995)	0	0	3626																																			
Adjustments to FY 1995	0																																					
Appropriated Amount (1996)		0																																				
Adjustment to FY 1996		0																																				
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			-3317																																			
Current Budget Submit/President's Budget	0	0	309																																			
Project D2ST										Exhibit R-2 (PE 0604814A)																												

UNCLASSIFIED

DATE September 1995

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604814A Sense and Destroy Armor Munition -
Engineering Development

PROJECT

D2ST

C. Other Program Funding Summary: NoneD. Schedule Profile

	FY 1995	FY 1996	FY 1997
1	2 3 4	1 2 3 4	1 2 3 4
Initiate preparation for 1Q FY 98 IOTE			X

Project D2ST

Page 3 of 9 Pages

Exhibit R-2 (PE 0604814A)

1037

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	September 1995	PROJECT
BUDGET ACTIVITY				PE NUMBER AND TITLE		D2ST
5 - Engineering and Manufacturing Development				0604814A Sense and Destroy Armor Munition - Engineering Development		
A. Project Cost Breakdown						
Operational Test and Evaluation				FY 1995	FY 1996	FY 1997
Total				0	0	309
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or	Contract					
Government	Method/Type	Award or	Total			
Performing	or Funding	Obligation	Prior to			
Activity	Vehicle	Date	FY 1995	FY 1996	FY 1997	Total
Product Development Organizations: N/A						Program
Support and Management Organizations: N/A						
Test and Evaluation Organizations						
OPTEC, Alex, VA				0	0	309
Government Furnished Property: None						5884
Subtotal Product Development				0	0	0
Subtotal Support and Management				0	0	0
Subtotal Test and Evaluation				0	0	309
Total Project				0	0	5884
						5884

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE September 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604814A Sense and Destroy Armor Munition -
Engineering Development

D644

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D644 Generic SADARM Engineering Development	40475	16164	9840	17000	21000	13000	2000	0	1000049

A. Mission Description and Budget Item Justification: Sense and Destroy Armor (SADARM)

Acquisition Strategy - R&D: The cost plus incentive fee (CPIF) contracts were awarded in FY 86 to Aerojet ElectroSystems and Honeywell. In FY 91, a design select eliminated the Honeywell competition. Aerojet then selected Honeywell (now Alliant Techsystems) as their prime sub-contractor and will continue this relationship into production. The Aerojet contract is now scheduled for completion in FY 96. Starting in FY 97, a contract will be awarded for a product improvement to the basic SADARM. This effort will focus on expanding the lethal search area of the submunition and improving its ability to kill targets.

FY 1995 Accomplishments:

- 32575 155mm engineering/corrective action
- 3100 155mm performance testing
- 4800 Producibility efforts
- Total 40475

FY 1996 Planned Program:

- 1900 155mm performance testing
- 8350 Producibility efforts/testing
- 5514 Transition to production efforts
- 46 Revised Economic Assumptions not available for execution
- 354 Funds will be used for SBIR/STTR programs IAW the Small Business Innovation Research Program Reauthorization Act of 1992
- Total 16164

Project D644

Page 5 of 9 Pages

Exhibit R-2 (PE 0604814A)

1039

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	September 1995																																				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																					
5 - Engineering and Manufacturing Development	0604814A Sense and Destroy Armor Munition - Engineering Development	D644																																					
<p>FY 1997 Planned Program</p> <ul style="list-style-type: none"> • 1250 Hardware in-the-loop support • 1250 Initial/design planning for combined effects warhead • 4000 Trade studies and test for electronics sensor/software • 850 Test hardware • 2490 Government support and development of initial test criteria/schedules/plans <p>Total 9840</p>																																							
<p>B. Project Change Summary</p> <table> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget (FY 1996)</td> <td>41395</td> <td>16617</td> <td>0</td> </tr> <tr> <td>Appropriated Amount (FY 1995)</td> <td>40526</td> <td></td> <td></td> </tr> <tr> <td>Adjustment to FY 1995</td> <td>-51</td> <td></td> <td></td> </tr> <tr> <td>Appropriated Amount (FY 1996)</td> <td></td> <td>16327</td> <td></td> </tr> <tr> <td>Adjustment to FY 1996</td> <td></td> <td>-163</td> <td></td> </tr> <tr> <td>Adjustments to Budget Year (FY 1997) since FY 1996</td> <td></td> <td></td> <td></td> </tr> <tr> <td>President's Budget</td> <td></td> <td></td> <td>9840</td> </tr> <tr> <td>Current President's Budget Submit</td> <td>40475</td> <td>16164</td> <td>9840</td> </tr> </tbody> </table> <p>Change Summary Explanation: Funding: FY 1996: This program has been reduced for revised economic assumptions.. Schedule: FY 1997: Product Improvement Program will be initiated in FY 97, electronic trade studies and prototype testing will be initiated.</p>					FY 1995	FY 1996	FY 1997	Previous President's Budget (FY 1996)	41395	16617	0	Appropriated Amount (FY 1995)	40526			Adjustment to FY 1995	-51			Appropriated Amount (FY 1996)		16327		Adjustment to FY 1996		-163		Adjustments to Budget Year (FY 1997) since FY 1996				President's Budget			9840	Current President's Budget Submit	40475	16164	9840
	FY 1995	FY 1996	FY 1997																																				
Previous President's Budget (FY 1996)	41395	16617	0																																				
Appropriated Amount (FY 1995)	40526																																						
Adjustment to FY 1995	-51																																						
Appropriated Amount (FY 1996)		16327																																					
Adjustment to FY 1996		-163																																					
Adjustments to Budget Year (FY 1997) since FY 1996																																							
President's Budget			9840																																				
Current President's Budget Submit	40475	16164	9840																																				
<p>C. Other Program Funding Summary</p> <table> <thead> <tr> <th></th> <th>FY 1995</th> <th>FY 1996</th> <th>FY 1997</th> <th>FY 1998</th> <th>FY 1999</th> <th>FY 2000</th> <th>FY 2001</th> <th>To Compl</th> <th>Total Cost</th> </tr> </thead> <tbody> <tr> <td>Procurement, Ammunition, Army, SSN E66300</td> <td>29825</td> <td>41103</td> <td>60259</td> <td>69455</td> <td>78050</td> <td>84892</td> <td>84261</td> <td>1839243</td> <td>2287088</td> </tr> <tr> <td>Proj, Arty, 155mm SADARM, M898</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost	Procurement, Ammunition, Army, SSN E66300	29825	41103	60259	69455	78050	84892	84261	1839243	2287088	Proj, Arty, 155mm SADARM, M898															
	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost																														
Procurement, Ammunition, Army, SSN E66300	29825	41103	60259	69455	78050	84892	84261	1839243	2287088																														
Proj, Arty, 155mm SADARM, M898																																							
Project D644		Page 6 of 9 Pages																																					
		Exhibit R-2 (PE 0604814A)																																					

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY					DATE				
5 - Engineering and Manufacturing Development					September 1995				
PE NUMBER AND TITLE					PROJECT				
0604814A Sense and Destroy Armor Munition - Engineering Development					D644				
D. Schedule Profile					FY 1997				
					FY 1996				
					FY 1995				
					1				
					2				
					3				
					4				
					1				
					2				
					3				
					4				
ASARC/type classify (low rate prod)									
Defense Acq Board/Milestone IIIA					X*				
Initial verification testing					X*				
Award first low rate prod contract					X*				
Final verification tests					X				
Award option to first LRP contract					X				
Award second low rate prod contract					X				
Producibility confirmation firings					X				
Conduct Initial Production Test (IPT)					X				
Award Product Improvement Contract					X				
* Denotes completed milestone									

Project D644

Page 7 of 9 Pages

Exhibit R-2 (PE 0604814A)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE
	September 1995

BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT
5 - Engineering and Manufacturing Development		0604814A Sense and Destroy Armor Munition - Engineering Development				D644
A. Project Cost Breakdown						
Contractor Engineering Support		FY 1995	FY 1996	FY 1997		
		32681	11730	7350		
Government Engineering Support		2670	1632	2190		
Program Management Support		1809	1132	250		
Developmental Test and Evaluation		3315	1670	50		
Total		40475	16164	9840		
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1996 FY 1997
Product Development Organizations						
Prod Improv:-	SS/CPIAF	FEB 97	TBD	TBD	0	0 6100
Aerojet- Azusa,CA						
Aerojet-Azusa, CA	C/CPIF	SEP 86	TBD	442460	391830	11730 0
ARDEC-Picatinny					58403	810 1250
Alliant Tech Sys	C/CPIF	SEP 86	TBD	188714	188038	0 0
Hopkins, MN						
Loral Vought Sys	SS/CPIF	SEP 88	TBD	90535	90535	0 0
Dallas, TX						
Miscellaneous					7645	0 7645
Support and Management Organizations						
Prod Improv:					0	0 0
ARDEC						
PM SADARM					0	0 250
Picatinny Arsenal					10130	1400 2190
PMO-MLRS,					16266	0 0
Huntsville, AL						
Miscellaneous					7454	914 468
						0
						850
						9150
						0
						16266
						0
						8836
						Exhibit R-3 (PE 0604814A)
Project D644						Page 8 of 9 Pages

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

September 1995

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604814A Sense and Destroy Armor Munition -

D644

Engineering Development

Contract or

Government Method/Type Award or Performing Project Total

Performing or Funding Obligation Date Office EAC FY 1995

Activity Vehicle EAC FY 1995 FY 1996 FY 1997 Budget to

Test and Evaluation Organizations

YPG, Yuma, AZ

WSMR

New Mexico

Miscellaneous

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

Project D644

Page 9 of 9 Pages

Exhibit R-3 (PE 0604814A)

1043

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development 0604816A Longbow

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	169582	22945	5872	0	0	0	0	0	1740960
DC13 Hellfire Seeker	35480	0	0	0	0	0	0	0	385830
DC27 Longbow - ED	22093	0	0	0	0	0	0	0	761913
DC31 Longbow - Apache	90091	9008	0	0	0	0	0	0	551490
DC87 Longbow - Apache TESS	0	13937	5872	0	0	0	0	0	19809
D2DT LBA Operational Test	21918	0	0	0	0	0	0	0	21918

Mission Description and Budget Item Justification: Longbow will provide the AH-64 with a fire-and-forget Hellfire capability, greatly increasing weapon system effectiveness and aircraft survivability. The weapon system will be employable by day or night, in adverse weather, and in countermeasures environments. The Hellfire missile will effectively engage and destroy advanced threat armor on the digital battlefield well into the next century. Longbow Project DC13 consisted of the development of a radar frequency (RF) missile seeker for the Hellfire missile. Project DC27 consisted of the development of a mast-mounted Fire Control Radar (FCR) for the AH-64. Project DC31 includes the efforts necessary to synchronize the integration of the FCR and RF missile onto the Apache aircraft. It includes two versions of the Longbow Apache AH-64D series aircraft: (1) the AH-64D with the FCR mission kit plus the upgraded 701C engine, and (2) the AH-64D without the FCR mission kit and engine upgrade. Project D2DT provided funding for the direct costs of Initial Operational Test and Evaluation and the Longbow Operational Test. Project DC87 provides funding for the Longbow Apache Tactical Engagement Simulation System (TESS). The TESS will perform air-to-air and RF missile simulations in addition to the functions of the Multiple Integrated Laser Engagement System/Air-to-Ground Engagement System for force-on-force collective training after fielding. Project DC87 also includes follow-on development of the Longbow Crew Trainer. The projects in this Program Element support research efforts in the engineering and manufacturing development phase of the acquisition strategy and are, therefore, correctly placed in Budget Activity 5.

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604816A Longbow

DC13

COST (/In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DC13 Hellfire Seeker	35480	0	0	0	0	0	0	0	385830

A. Mission Description and Budget Item Justification This project develops the Longbow Hellfire, a missile that is capable of being employed day or night, in adverse weather, and in a countermeasures environment against armored targets and air defense systems. Its millimeter wave seeker and inertial measurement system provide a fire-and-forget capability which greatly reduces aircraft exposure time. It uses a Hellfire II warhead system to destroy threat armor that is projected for early into the 21st century.

Acquisition Strategy: The acquisition strategy involves a sole source contract during the Engineering and Manufacturing Development phase leading to a production contract in FY 96.

FY 1995 Accomplishments:

- 22861 Complete Engineering Development Contract
- 4030 Testing
 - Missile Flight Testing
 - Qualification Testing
 - Electromagnetic Environmental Effect Testing
 - Warhead / Live Fire Testing
 - Countermeasure Testing
- 8589 Complete Program Management Support

Total 35480

FY 1996 Planned Program: Project not funded.

FY 1997 Planned Program: Project not funded.

B. Project Change Summary

Previous President's Budget (FY 1996)
 Appropriated Amount (FY 1995)
 Adjustments to FY 1995
 Current President's Budget Submit

FY 1995	FY 1996	FY 1997
34522	0	0
33797	0	0
1683	0	0
35480	0	0

Project DC13

Page 2 of 18 Pages

Exhibit R-2 (PE 0604816A)

1045

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									
BUDGET ACTIVITY		DATE		PROJECT					
5 - Engineering and Manufacturing Development		March 1996		DC13					
		PE NUMBER AND TITLE							
		0604816A Longbow							
Change Summary Explanation: Funding: FY 95 reprogramming (+1483) within PEO, Tactical Missiles. FY 95 adjustment (+200) from project DC31.									
C. Other Program Funding Summary									
Missile Procurement, Army (C70300)									
FY 1995 FY 1996 FY 1997 FY 1998 FY 1999 FY 2000 FY 2001 To Total Cost									
41195 188714 249521 268430 336513 290778 290388 492411 2157950									
D. Schedule Profile									
FY 1995 FY 1996 FY 1997 FY 1998 FY 1999 FY 1997									
1 2 3 4 1 2 3 4 1 2 3 4									
High Speed Captive Flight Test									
Missile Firings (Helo-launched)									
Hardware-In-The-Loop Tests									
System Qualification Tests									
IOTE									
Live Fire Tests									
* Denotes milestone completion									

Project DC13

Page 3 of 18 Pages

Exhibit R-2 (PE 0604816A)

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

BUDGET ACTIVITY		PE NUMBER AND TITLE			DATE	PROJECT
5 - Engineering and Manufacturing Development		0604816A Longbow			March 1996	DC13
A. Project Cost Breakdown						
Prime Contract		FY 1995	FY 1996	FY 1997		
Program Management & Test Support		22906	0	0		
Total		12574	0	0		
		35480				
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or	Contract					
Government	Method/Type					
Performing	or Funding					
Activity	Vehicle					
	Date					
Product Development Organizations						
Longbow Joint	SS/CPIF/AF	DEC 90				
Venture						
(Westinghouse &						
Lockheed Martin)						
Support and Management Organizations						
Program						
Management						
Support						
Test and Evaluation Organizations						
Test Activities						
Government Furnished Property						
Not applicable						
Subtotal Product Development		303289	22906			326195
Subtotal Support and Management		39729	8655			48384
Subtotal Test and Evaluation		7332	3919			11251
Total Project		350350	35480			385830
Project DC13						
Page 4 of 18 Pages						
1047						
Exhibit R-3 (PE 0604816A)						

Project DC13

Page 4 of 18 Pages

1047

Exhibit R-3 (PE 0604816A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604816A Longbow								DC27	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DC27	Longbow - ED	22093	0	0	0	0	0	0	0	761913	
<p>A. Mission Description and Budget Item Justification: This project consists of a mast-mounted Fire Control Radar (FCR) that will be integrated onto the AH-64 aircraft. The FCR, along with the Hellfire Seeker (Project DC13), will provide the AH-64 with a fire-and-forget capability, greatly increasing system effectiveness and aircraft survivability. The weapon system will be employable day or night, in adverse weather, and in countermeasures environments. The system will effectively engage and destroy high-value targets including advanced armor on the battlefield well into the next century. To be effective and survive on this future battlefield, the attack helicopter team must rapidly engage multiple targets with minimum exposure time and deploy a system that is inherently resistant to threat countermeasures.</p> <p>Acquisition Strategy: The acquisition strategy involves a sole source contract during the Engineering and Manufacturing Development phase leading to a production contract in FY 96.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 15685 Engineering Development Contract <ul style="list-style-type: none"> - Conduct Force Development Test and Experimentation (FDTE) - Complete environmental qualification - Award Long Lead Production Contract - Complete Systems Test - Conduct Functional Configuration Audit (FCA) - Conduct Initial Operational Test and Evaluation (IOTE) - Complete Development Program 2183 In-House Support 234 Test Support 3991 Support Contracts Total 22093 <p>FY 1996 Planned Program: Project not funded</p> <p>FY 1997 Planned Program: Project not funded</p>											

Project DC27

Page 5 of 18 Pages

Exhibit R-2 (PE 0604816A)

1048

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604816A Longbow

DC27

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Current Budget Estimate Submission

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
22479	0	0	0	0	0	0
22093	0	0	0	0	0	0
0	0	0	0	0	0	0
22093	0	0	0	0	0	0

C. Other Program Funding Summary

Aircraft Procurement, Army (AA6608)

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Complete	Total Cost
0	82062	95048	105264	119457	116038	108131	57548	683548

D. Schedule Profile

Technical Test

FDTE

IOTE

Long Lead In Process Review

FCA

Long Lead Contract Award

* Denotes milestone completion

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
2	3	4	1	2	3	4
X*	X*	X*	X*	X*	X*	X*

Project DC27

Page 6 of 18 Pages

Exhibit R-2 (PE 0604816A)

1049

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE										DC27
5 - Engineering and Manufacturing Development		0604816A Longbow										
A. Project Cost Breakdown												
Contractor Engineering and Development		FY 1995	FY 1996	FY 1997								
Government Program Management		15685	0	0								
Other Government Support		2183	0	0								
PATS Contractor Program Support		1566	0	0								
Total		2659	0	0								
		22093										
B. Budget Acquisition History and Planning Information												
Performing Organizations												
Contractor or Government	Method/Type	Award or Obligation	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program		
Activity	Vehicle	Date	EAC	EAC								
Product Development Organizations												
Proof of Principle	SS / CPIF		Contract is complete	Contract is complete	396945	0	0	0	0	396945		
Contract -												
Longbow Joint Venture												
(Westinghouse & Lockheed Martin)												
EMD Contract -	SS	DEC 90			318189	15685	0		0	333874		
Longbow Joint Venture	CPIF / AF											
Support and Management Organizations												
Gov't. Prog Mgmt.	Varies	Quarterly			7641	3515	0	0	0	11156		
PATS Contractors	Varies	Quarterly			6642	2659	0	0	0	9301		
Test and Evaluation Organizations												
Test Activities	Varies	Quarterly			10403	234	0	0	0	10637		
Government Furnished Property Not Applicable												
Project DC27		Page 7 of 18 Pages										Exhibit R-3 (PE 0604816A)

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604816A Longbow

DC27

Total

Prior to

FY 1995

715134

14283

10403

739820

FY 1995

15685

6174

234

22093

FY 1996

FY 1997

Budget to

Complete

Total

Program

730819

20457

10637

761913

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

Project DC27

Page 8 of 18 Pages

Exhibit R-3 (PE 0604816A)

1051

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE	March 1996	
BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT		
5 - Engineering and Manufacturing Development	0604816A Longbow						DC31		
COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
DC31 Longbow - Apache	90091	9008	0	0	0	0	0	0	551490
<p>A. Mission Description and Budget Item Justification The Longbow program encompasses modifications to the AH-64 Apache as well as upgrades to the aircraft systems for the AH-64D series to efficiently and effectively integrate the FCR and RF missile. The system provides an adverse weather fire-and-forget missile capability that increases the AH-64 lethality and survivability. The Longbow Apache also retains the capability to fire the Semi-Active Laser Hellfire. The greatly-improved design increases the operational capability of the crew and provides increased lethality and survivability, while complying with Congressional direction to standardize the fleet to a common configuration.</p> <p>Acquisition Strategy: The acquisition strategy involves a sole source contract during the Engineering and Manufacturing Development phase leading to a production contract in FY 96.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 73008 MDHS Engineering Development Contract • 1722 Procurement And Technical Support (PATS) Contracts • 3251 Optical Relay Tube (ORT) Handgrip Modification • 12110 In-House Support Total 90091 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 7423 MDHS Prime Contract • 809 In-House Support • 550 Optical Relay Tube (ORT) Handgrip Modification • 25 Revised Economic Adjustment Not Available for Execution • 201 SBIR/STTR Total 9008 <p>FY 1997 Planned Program: Project not funded.</p>									

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
DC31

5 - Engineering and Manufacturing Development

0604816A Longbow

B. Project Change Summary

Previous President's Budget (FY 1996)
 Appropriated Amount (FY 1995)
 Adjustments to FY 1995
 Appropriated Amount (FY 1996)
 Adjustment to FY 1996
 Current President' Budget Submit

FY 1995	FY 1996	FY 1997
88216	9261	0
86363	0	0
+3728	0	0
0	9099	0
0	-91	0
90091	9008	0

Change Summary Explanation:

Funding: FY 95 adjustment (-200) to project DC13, (+3928) reprogrammed for Longbow requirements.
 FY 96 adjustment (-91) for revised economic assumptions.

C. Other Program Funding Summary

Aircraft Procurement, Army (AA6607)*

*Includes procurement funding for TESS shown in Project DC87.

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
117027	335661	296953	336218	433348	540048	580428	5021664	7661347

D. Schedule Profile

Force Development Test & Experimentation
 Initial Operational Test & Evaluation
 Long Lead In-Process Review
 Long Lead Contract Award
 Functional Configuration Audit
 Live Fire Testing
 Line Replaceable Units Qualification
 Environmental Control System Redesign
 Longbow Crew Trainer

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
1	2	3	4	1	2	3

X*

X*

X*

Functional Configuration Audit

Live Fire Testing

Line Replaceable Units Qualification

Environmental Control System Redesign

Longbow Crew Trainer

* Denotes milestone completion

X
X
X

Project DC31

Page 10 of 18 Pages

Exhibit R-2 (PE 0604816A)

1053

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604816A Longbow

DC31

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
Contractor Engineering and Development	76259	7973	0
Government In-House Program Management	9391	809	0
Other Government Support	2719	0	0
PATS Contractor Program Support	1722	0	0
SBIR / Economic Adjustment		226	
Total	90091	9008	

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
McDonnell Douglas	CPF	AUG 89		460573	380142	73008	7423	0	0	460573
Helicopter Systems (Airframe Modifications)	Basic Ordering Agreement			3801	0	3251	550	0	0	3801
Lockheed Martin	Basic Ordering Agreement									
ORT Handgrip Modifications										
Support and Management Organizations										
Govt. Prog. Mgmt.	Varies	Quarterly		64677		10349	809	0	0	75835
PATS Contractors	Varies	Quarterly		5181		1722		0	0	6903
SBIR/Economic Adjustment							226			226
Test and Evaluation Organizations										
Test Activities	Varies	Quarterly		2353		1761	0	0	0	4114
Government Furnished Property	Not applicable									

Project DC31

Page 11 of 18 Pages

Exhibit R-3 (PE 0604816A)

1054

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604816A Longbow

PROJECT

DC31

	Total								
	Prior to								
	FY 1995	FY 1995	FY 1996	FY 1997		Budget to		Total	
Subtotal Product Development	380142	76259	7973		Complete	Program		464374	
Subtotal Support and Management	69858	12071	1035					83002	
Subtotal Test and Evaluation	2353	1761						4114	
Total Project	452353	90091	9008					551490	

Project DC31

Page 12 of 18 Pages

Exhibit R-3 (PE 0604816A)

1055

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604816A Longbow								DC87	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DC87	Longbow - Apache TESS	0	13937	5872	0	0	0	0	0	19809	
<p>A. Mission Description and Budget Item Justification: The Tactical Engagement Simulation System (TESS) will perform air-to-air and RF missile simulations in addition to the functions of the Multiple Integrated Laser Engagement System/Air-to-Ground Engagement System for force-on-force collective training after fielding. Project DC87 also includes follow-on development of the Longbow Crew Trainer. The TESS consists of an "A" kit and a "B" kit.</p> <p>Acquisition Strategy: The Apache Attack Helicopter Project Manager's Office will contract with McDonnell Douglas Helicopter Systems to do the provisioning for the "A" kit that consists of minimal on-board software for data interface operator control software, wiring, and power source taps for the "B" kit.</p> <p>FY 1995 Accomplishments: Project not funded</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> • 2000 Start development, fabrication, and integration of the TESS "A" kit • 8598 Start development, fabrication, and integration of the TESS "B" kit • 1989 Continue development of the Longbow Crew Trainer • 1000 Supplier Qualification • 39 Revised Economic Assumption Not Available for Execution • 311 SBIR/STTR Total 13937 <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 600 Complete integration of the "A" kit • 5272 Complete integration of the "B" kit Total 5872 											

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604816A Longbow

PROJECT

DC87

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget

Current Budget Estimate Submission

FY 1995	FY 1996	FY 1997
0	14329	4080
0	0	0
0	0	0
0	14078	0
0	-141	0
0	0	1792
0	13937	5872

Change Summary Explanation:

Funding: FY 96 (-141) reflects revised economic assumptions.

FY 97 (-208) reflects revised economic assumptions; (+2000) reprogrammed from Aircraft Procurement Appropriation for TESS requirements.

C. Other Program Funding Summary

Longbow Apache TESS (AA6607)*

*This procurement funding represents only the portion of this line to be used for the TESS effort. The total procurement line (AA6607) includes additional funding for all other Longbow Apache efforts.

FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
0	0	0	3435	3599	22942	0	0	29976

D. Schedule ProfileBegin development, fabrication, & integration
Complete kits integration

	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
1	2	3	4	1	2	3	4
				X			
					X		

Project DC87

Page 14 of 18 Pages

Exhibit R-2 (PE 0604816A)

1057

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

March 1996

PE NUMBER AND TITLE

0604816A Longbow

DC87

A. Project Cost Breakdown									
	FY 1995	FY 1996	FY 1997						
Contractor Engineering and Development	0	10098	5872						
Longbow Crew Trainer Development	0	1989	0						
SINCGARS System Improvement Program	0	1500	0						
SBIR / Economic Adjustment	0	350	0						
Total		13937	5872						
B. Budget Acquisition History and Planning Information									
Performing Organizations									
Contractor or Government Performing Activity	Project Office EAC	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program		
Product Development Organizations									
MDHS Unknown	19459			13587	5872	0	19459		
Support and Management Organizations:				350					
SBIR/Economic Adjustment							350		
Test and Evaluation Organizations: None									
Government Furnished Property Not applicable									
Subtotal Product Development				13587	5872		19459		
Subtotal Support and Management				350			350		
Subtotal Test and Evaluation									
Total Project				13937	5872		19809		

Exhibit R-3 (PE 0604816A)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PROJECT
D2DT

PE NUMBER AND TITLE

0604816A Longbow

5 - Engineering and Manufacturing Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D2DT LBA Operational Test	21918	0	0	0	0	0	0	0	21918

A. Mission Description and Budget Item Justification: This project finances the direct costs of planning and conducting operational testing and evaluation of the Longbow Apache system by the Operational Test and Evaluation Command (OPTEC). The Longbow Apache is a Category I system with Initial Operational Test and Evaluation in 1995. Operational Testing is conducted under conditions as close as possible to those encountered in actual combat with typical user troops trained to employ the system. OPTEC provides an independent test and evaluation of the system's effectiveness and suitability to Army leadership. Project D2DT was restructured from PE 0605712A, Support of Operational Testing.

Acquisition Strategy: Operational Testing is required to determine the effectiveness and suitability of the Longbow system during the Engineering and Manufacturing Development phase, to meet the requirements for Milestone III and to enter the Production phase.

FY 1995 Accomplishments:

- 18998 Longbow Apache IOTE testing
- 1356 Longbow Apache IOTE evaluation
- 1564 Player unit support of IOTE
- Total 21918

FY 1996 Planned Program: Project not funded

FY 1997 Planned Program: Project not funded

B. Project Change Summary

Previous President's Budget (FY 1996)	FY 1995	FY 1996	FY 1997
Appropriated Value (FY 1995)	23831	0	0
Adjustments to FY 1995 Appropriated Value	23330		
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget	-1412		
Current Budget Estimate Submission	21918	0	0

Change Summary Explanation:

Funding: Funds reprogrammed to support operational testing for other systems.

Project D2DT

Page 16 of 18 Pages

Exhibit R-2 (PE 0604816A)

1059

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996	
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT
5 - Engineering and Manufacturing Development		0604816A Longbow		D2DT

C. Other Program Funding Summary: Not applicable

D. Schedule Profile

		FY 1995		FY 1996		FY 1997
	1	2	3	4	1	2
	X*					3
						4

Initiate Preparation for IOTE

Complete IOTE

* Denotes milestone completion

Project D2DT

Page 17 of 18 Pages

Exhibit R-2 (PE 0604816A)

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604816A Longbow

PROJECT
D2DT

A. Project Cost Breakdown
Operational Test and Evaluation
Total

FY 1995	FY 1996	FY 1997
21918	0	0
21918	0	0

B. Budget Acquisition History and Planning InformationPerforming Organizations

Contractor or Contract

Government Performing Activity	Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	EAC	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
--------------------------------------	--------------------------------------	--------------------------------	------------------------	-----	-------------------	------------------------------	---------	---------	---------	-----------------------	------------------

Product Development Organizations: None
Support and Management Organizations: None
Test and Evaluation Organizations

OPTEC

21918

0 21918

Government Furnished Property Not applicable

Subtotal Product Development
Subtotal Support and Management
Subtotal Test and Evaluation
Total Project

0	0	21918	21918
---	---	-------	-------

0	0	0	0	21918	21918
---	---	---	---	-------	-------

Project D2DT

Page 18 of 18 Pages

Exhibit R-3 (PE 0604816A)

1061

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE
BUDGET ACTIVITY										March 1996
PE NUMBER AND TITLE										
0604817A Combat Identification - Engineering & Manufacturing Development										
5 - Engineering and Manufacturing Development										
COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
Total Program Element (PE) Cost	20205	21853	16783	9730	9752	9591	9519	Continuing	Continuing	
D482 Combat Identification EMD	20205	21853	13886	9730	9752	9591	9519	Continuing	Continuing	
D901 All Service Combat ID Evaluation Team	0	0	2897	0	0	0	0	0	0	

Mission Description and Budget Item Justification: The world situation and modern warfare are evolving in a manner that dictates making reliable identification of friends, foes, and neutrals an absolute necessity, but increasingly difficult to achieve. The ability of weapons systems to engage targets at ranges longer than the capability to positively identify them significantly increases the potential for fratricide. This Program Element (PE) is directed toward the design and development of distinct technology devices to help minimize this battlefield deficiency. All Service Combat Identification Evaluation Team (ASCIET) began in FY 95 as an effort to evaluate and revise joint tactics, techniques, and procedures using current and new combat ID systems and technologies in a field environment. ASCIET was funded through Project D482. Restructuring was required because ASCIET is an independent effort from the Battlefield Combat Identification System (BCIS) EMD work. The projects within this PE are in the Engineering and Manufacturing Development (EMD) phase and the PE is correctly assigned in Budget Activity 5.

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604817A Combat Identification - Engineering &
Manufacturing Development

PROJECT

D482

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
D482 Combat Identification EMD	20205	21853	13886	9730	9752	9591	9519	Continuing	Continuing

A. Mission Description and Budget Item Justification: The Battlefield Combat Identification System (BCIS) is the lead Army horizontal technology initiative using the "A kit" (platform specific) and "B kit" (common to all platforms) philosophy. The program takes advantage of acquisition streamlining and directs industry to use commercial parts and practices to shorten acquisition timelines and to reduce cost. The purpose of BCIS is to reduce fratricide, a problem made increasingly difficult for gunners as we participate in coalition warfare where partners operate weapon systems formerly associated with adversaries. BCIS is a millimeter wave (mmW), ground-ground (G-G), point of engagement system which provides through-the-sight, day/night, all weather positive identification of BCIS equipped US, Allied and coalition platforms. Shooters query potential targets at ranges that can extend beyond 5 km. Friendly platforms targeted by friendly shooters generate automatic electronic responses in less than one second. BCIS is resistant to electronic countermeasures, active exploitation and deception. BCIS will be demonstrated during the Army Digitization Exercise, Task Force XXI. It will be used by combat, combat support, and combat services support units.

Acquisition Strategy: A competitive, cost plus award fee contract, for 45 EMD units and option quantities, was awarded Aug 93. This contract will be modified to include producibility efforts that will lead to the Low Cost Design for the BCIS.

FY 1995 Accomplishments:

- 6583 Completed hardware fabrication/assembly/test
- 4726 Completed platform integration
- 1850 Initiated Pre-Production Qualification Test (PPQT)
- 262 Completed modeling/simulation effort
- 5811 Exercised options for Task Force XXI (TF XXI) Experiment
- 973 All Service Combat Identification Evaluation Team (ASCIET) Support
- Total 20205

FY 1996 Planned Program:

- 673 Complete technical and user testing
- 14375 Complete hardware build for platform integration, and training/maintenance for TF XXI
- 3267 Initiate low cost design (LCD) producibility engineering effort
- 3000 All Service Combat Identification Evaluation Team (ASCIET) Support

Project D482

Page 2 of 9 Pages

Exhibit R-2 (PE 0604817A)

1063

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE	March 1996
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
5 - Engineering and Manufacturing Development	0604817A Combat Identification - Engineering & Manufacturing Development	D482	
FY 1996 Planned Program: (continued)			
• 62 Revised Economic Assumption not available for execution			
• 476 SBIR/STTR reduction not available for execution			
Total	21853		
FY 1997 Planned Program:			
• 3359 Provide technical, integration, training and maintenance support for TF XXI experiment			
• 2500 Design the Application Specific Integrated Circuit (ASIC) chip for LCD			
• 5802 Fabricate, assemble and test LCD hardware			
• 2225 Complete LCD producibility engineering effort			
Total	13886		
B. Program Change Summary			
Previous President's Budget (FY 1996)		FY 1995	FY 1996
Appropriated Amount (FY 1995)		18424	30466
Adjustments to FY 1995		18050	
Appropriated Amount (FY 1996)		2155	
Adjustments to FY 1996		22074	
Adjustments to Budget Year (FY 1997) since FY 1996		-221	
Presidents Budget			-3473
Current Presidents Budget Submit		20205	21945
			13886
Change Summary Explanation:			
Funding: FY 95 Reprogrammed funds to fund ASCIET (+1800)			
FY 95 Reprogrammed funds to accelerate delivery for Task Force XXI (+355)			
FY 96 Revised Economic Assumption (-221)			
FY97 Reprogrammed to D901 ASCIET (-3000) and revised inflation (-473).			
Project D482		Page 3 of 9 Pages	
		Exhibit R-2 (PE 0604817A)	

1064

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	March 1996	PROJECT				
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT				
5 - Engineering and Manufacturing Development		0604817A Combat Identification - Engineering & Manufacturing Development				D482				
C. Other Program Funding Summary: Work in this program element is related to and fully coordinated with efforts in PE #0602120 (Battlefield Ground Combat Identification Technology) and PE #0603772 (Ground Combat Identification Demonstration).										
		FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	To Compl	Total Cost
	RDTE, A Budget Activity 2, PE 0602120A	3939	3383	3686	3718	3802	3778	3854	continues	continues
	Proj AH15 Ground Combat Identification Tech									
	RDTE A, Budget Activity 3, PE 0603772A	7912	6813	7136	3412	0	0	0	0	25273
	Proj D281 Ground Combat ID Demo									
D. Schedule Profile		FY 1995		FY 1996			FY 1997			
	1	2	3	4	1	2	3	4		
	Complete Hardware	X*								
	Fabrication/Assmb/Test									
	Exercise option for TF XXI Experiment	X*								
	Conduct PPQT									
	Complete platform integration			X*						
	Complete technical and user testing									
	Complete hardware build for TF XXI			X						
	Complete platform integ for TF XXI			X						
	Conduct maint/training				X					
	Provide tech, integ, tng/maint TF XXI					X				
	Complete LCD producibility engineering effort						X			
	Complete LCD hardware, fabrication, assembly, test							X		

Project D482

Page 4 of 9 Pages

Exhibit R-2 (PE 0604817A)

Project D482

Page 4 of 9 Pages

Exhibit R-2 (PE 0604817A)

1065

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	March 1996	PROJECT
BUDGET ACTIVITY				PE NUMBER AND TITLE		D482
5 - Engineering and Manufacturing Development				0604817A Combat Identification - Engineering & Manufacturing Development		
A. Project Cost Breakdown				FY 1995	FY 1996	FY 1997
Primary Hardware Development				9968	11948	10658
Platform Integration				3792	2060	
System Engineering/Program Management Support						
Government Contractor				1291	1280	1264
				1473	1454	1014
Program Management Personnel				858	900	950
Development Test and Evaluation				1850		
Operational Test and Evaluation					673	
ASCIET				973	3000	
Revised economic assumption not available for execution					62	
SBIR/STTR reduction not available for execution					476	
Total				20205	21853	13886
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1995
					FY 1996	FY 1997
					Budget to Complete	Total Program
Product Development Organizations						
TRW	C/CPAF	12 Aug 93	58226	58226	19044	9968
GDLS	SS/CPFF	29 Apr 94	8215	8215	2863	3792
Misc	MIPR	15 Jan 94			3102	0
Support and Management Organizations						
Misc	MIPR				5248	2331
CECOM	MIPR				3985	1291
Test and Evaluation Organizations						
TECOM	MIPR	01 Mar 95			0	1850
TEXCOM	MIPR	15 Oct 95			0	0
Project D482				Page 5 of 9 Pages		Exhibit R-3 (PE 0604817A)

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604817A Combat Identification - Engineering &
Manufacturing Development D482

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle MIPR	Award or Obligation Date 2Q 96	Performing Activity EAC	Project Office EAC	Total		FY 1997	FY 1996	FY 1995	Budget to Complete	Total Program	PROJECT
					Prior to FY 1995	0						
ASCIET								3000	973	0	3973	
Government Furnished Property: Not Applicable												
Subtotal Funds not available for execution								538				Cont
Subtotal Product Development					25009			14008	13760	10658	6608	Cont
Subtotal Support and Management					9233			3634	3622	3228	3122	Cont
Subtotal Test and Evaluation								3673	2823			Cont
Total Project					34242			21853	20205	13886	9730	Cont

Project D482

Page 6 of 9 Pages

Exhibit R-3 (PE 0604817A)

1067

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604817A Combat Identification - Engineering & Manufacturing Development								D901	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D901	All Service Combat ID Evaluation Team	0	0	2897	0	0	0	0	0	0	
<p>A. Mission Description and Budget Item Justification: All Service Combat Identification Evaluation Team (ASCIET) Support. ASCIET is an expanded effort aimed at fostering improved tactics, techniques, and procedures (TTP) across all combat identification mission areas. The Army, Navy, Air Force and Marine Corps are designated as the participating Services with the Air Force designated as the lead Service. ASCIET is chartered to employ the equipment and personnel of all Services to evaluate, investigate and assess various concepts of combat identification on the battlefield. ASCIET will also offer Federally Funded Research and Development Centers (FFRDCs), Service Battle Laboratories, and industry the opportunity to review and evaluate emerging technologies in multi-Service environment on a noninterference basis as a risk reduction and verification. ASCIET began in FY 95 as an effort to evaluate and revise joint TTP using current and new combat ID systems and technologies in a field environment. ASCIET was funded through Project D482. Restructuring was required because ASCIET is an independent effort from the BCIS EMD work.</p> <p>Acquisition Strategy: A competitive, cost plus award fee contract, for 45 EMD units and option quantities, was awarded Aug 93. This contract will be modified to include producibility efforts that will lead to the Low Cost Design for the BCIS.</p> <p>FY 1995 Accomplishments: Program not funded in FY 1995</p> <p>FY 1996 Planned Program: Program not funded in FY 1996</p> <p>FY 1997 Planned Program</p> <ul style="list-style-type: none"> • 43 Demonstrate situational awareness to BCIS through digital data link reporting to include friend indication, GPS location, unit ID, SINCGARS call sign/frequency. • 1612 Demonstrate A-G target identification capability for rotary wing (HO-58D) platforms via SINGARS SIP(+) radio and embedded GPS interface (EGI) • 818 Demonstrate direct target ID capability for both fixed wing (AV-8B) and rotary wing (AH-64) • 424 Demonstrate automated "nine line" message generation utilizing Automatic Target Handoff System (ATHS) II data link to locate and identify targets for fixed wing aircraft. <p>Total 2897</p>											

Project D901

Page 7 of 9 Pages

Exhibit R-2 (PE 0604817A)

1068

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604817A Combat Identification - Engineering &
Manufacturing Development

D901

B. Program Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to FY 1995

Appropriated Amount (FY 1996)

Adjustments to FY 1996

Adjustments to Budget Year (FY 1997) since FY 1996

President's Budget

Current Presidents Budget Submit

FY 1995	FY 1996	FY 1997
0	0	0

2897

2897

Change Summary Explanation:

Funding: FY97 Reprogrammed Funds from 0604817A/D482

C. Other Program Funding Summary: Not ApplicableD. Schedule Profile

	FY 1995			FY 1996			FY 1997		
	1	2	3	4	1	2	3	4	X
Conduct field test and demonstrations									

Project D901

Page 8 of 9 Pages

Exhibit R-2 (PE 0604817A)

1069

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE						D901
5 - Engineering and Manufacturing Development		0604817A Combat Identification - Engineering & Manufacturing Development						
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997				
ASCIET				2897				
Total				2897				
B. Budget Acquisition History and Planning Information								
Performing Organizations								
Contractor or	Contract							
Government	Method/Type	Award or	Performing	Project	Total			
Performing	or Funding	Obligation	Activity	Office	Prior to			
Activity	Vehicle	Date	EAC	EAC	FY 1995	FY 1996	FY 1997	Budget to Complete
Product Development Organizations: None								Total Program
Support and Management Organizations: None								
Test and Evaluation Organizations								
ASCIET	MIPR				2897			2897
Government Furnished Property: Not Applicable								
Subtotal Product Development								
Subtotal Support and Management								
Subtotal Test and Evaluation						2897		2897
Total Project						2897		2897

Project D901

Page 9 of 9 Pages

Exhibit R-3 (PE 0604817A)

1070

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604818A Army Tactical Command and Control
Hardware & Software

COST (in Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	18338	18163	16429	16309	16087	17087	16971	Continuing	Continuing
DC34 Army Tactical C2 Systems (ATCCS) Engineering	10151	10408	8645	8579	8460	9626	9559	Continuing	Continuing
D323 Common Hardware Software (CHS)	8187	7755	7784	7730	7627	7461	7412	Continuing	Continuing

Mission Description and Budget Item Justification: The umbrella program to exploit automation technology for the conduct of combat operations is the Army Tactical Command and Control System (ATCCS) program which is a component of the Army Battle Command System (ABCS). The ATCCS program provides automation in the five battlefield functional areas (BFAs) with the following specific systems: (1) Maneuver Control System (MCS); (2) Advanced Field Artillery Tactical Data System (AFATDS); (3) All Source Analysis System (ASAS) for Intelligence/Electronic Warfare; (4) Forward Area Air Defense Command, Control and Intelligence System (FAADC2I); and (5) Combat Service Support Control System (CSSCS) and to other Army Joint and Allied Systems. To provide an overall technically sound, cost effective, and operationally responsive approach, the design and development of ATCCS must be accomplished on a total systems basis. The ATCCS Engineering program provides the required systems engineering to assure integrated Army tactical command and control, and the utilization of common hardware and software throughout the five ATCCS nodal systems. The Common Hardware Software (CHS) project provides common hardware and software to customers to meet their developmental and fielding needs. The projects in this program element support the ATCCS programs which for the most part are in the engineering and manufacturing development phases of their acquisition strategies and, therefore, they are correctly placed in Budget Activity 5.

Page 1 of 8 Pages

Exhibit R-2 (PE 0604818A)

1071

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE		March 1996	
BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT		
5 - Engineering and Manufacturing Development			0604818A Army Tactical Command and Control Hardware & Software								DC34		
COST (In Thousands)			FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost		
DC34	Army Tactical C2 Systems (ATCCS) Engineering		10151	10408	8645	8579	8460	9626	9559	Continuing	Continuing		
<p>A. Mission Description and Justification: Project DC34 - Army Tactical C2 Systems (ATCCS) Engineering: The Airland Battle Doctrine requires military leaders to make sound and timely command and control decisions to direct the activities of assigned and supporting units. The umbrella program to exploit automation technology in support of this mission is the ATCCS Program a component of the ABCS. The effort to achieve horizontal integration of the ATCCS BFAs, although going on independently in each BFA, was not disciplined enough to address all connections and needs within the entire spectra of command, control and communications. Therefore, to ensure this horizontal integration effort is complete and automated, a significant management, systems engineering and integration effort is required.</p> <p>Acquisition Strategy: This project provides the technical and programmatic disciplines required for systems engineering and integration, experimentation, acquisition management, testing, Ada software development, interoperability, fielding, and sustainment to assure an interoperable, as well as, affordable ATCCS. The Program Executive Officer Command, Control and Communications Systems (PEO C3S) has planned an evolutionary approach to fielding the ATCCS as soon as possible.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 1000 Performed functional analysis and update command post analysis to allow Follow-on Test and Evaluation (FOTE)/fielding 800 Established an ATCCS data architecture and standardization program 500 Continued the tech insertion program, e.g., large screen displays, plotters, advanced networking, weather tactical decision aids, and interactive electronic pen technology 3000 Provided ATCCS interoperability engineering and system level engineering support 700 Produced and tested voice recognition system and Global Positioning System (GPS) prototype 672 Continued Brigade and Below Command and Control (B2C2) applications, including brigade/battalion task force and operation plan/operations order, and refine communications interface to include Integrated Vehicular Information System (IVIS) 3479 Conducted/supported system configuration developmental/operational demonstrations Total 10151 <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 1440 Perform functional analysis and update command post analysis to support ABCS and Army Warfighter Experiments (AWE) 800 Extend the ABCS data architecture and standardization program to additional functional areas 500 Continue the tech insertion program, e.g., advanced communication protocols, advanced networking, tactical decision aids, and distributed databases 5257 ABCS/Task Force XXI interoperability engineering and system level engineering support 													

Project DC34

Page 2 of 8 Pages

Exhibit R-2 (PE 0604818A)

1072

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604818A Army Tactical Command and Control
Hardware & Software

DC34

FY 1996 Planned Program: (continued)

- 450 Incorporate technology of B2C2 applications into embedded applications
- 1700 Conduct/support system configuration developmental/operational demonstrations in preparation for MCS Initial Operational Test & Evaluation (IOT&E) and other BFA FOTE's
- 232 SBIR/STTR
- 29 Revised Economic Assumptions - Not available for execution
- Total 10408

FY 1997 Planned Program:

- 500 Perform functional analysis and update command post analysis to support ABCS and AWE
- 1200 Extend the ABCS data architecture and standardization program to additional functional areas including a standard data element dictionary
- 1245 Continue the tech insertion program, e.g., wireless Local Area Networks (LANs), high efficiency net radio protocols, and interactive video
- 2700 ABCS interoperability engineering and system level engineering support
- 800 Perform dependency analysis and verification and validation of all BFA fielded software including common and unique applications
- 800 Perform multi-echelon integration of all command and control applications
- 1400 Conduct/support system configuration developmental/operational demonstrations in conjunction with MCS IOT&E and other BFA FOTE's
- Total 8645

B. Project Change Summary

	FY 1995	FY 1996	FY 1997
Previous President's Budget (FY 1996)	10346	10739	8947
Appropriated Amount (FY 1995)	10151		
Adjustments to (FY 1995)			
Appropriated Amount (FY 1996)		10513	
Adjustment to FY 1996		-105	-302
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget			
Current President's Budget Submit	10151	10408	8645

Change Summary Explanation:

Funding: FY 96 - (-105) the portion of the program that has been proposed for rescission
FY97 - (-302) reduction due to revised inflation rates

Project DC34

Page 3 of 8 Pages

Exhibit R-2 (PE 0604818A)

1073

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PROJECT

0604818A Army Tactical Command and Control

DC34

D. Schedule Profile

	FY 1995	FY 1996	FY 1997
2	4	1	2
3	3	3	3
4		4	4

Finalize Objective ATCCS specification
ATCCS System Confidence Demo-6
ATCCS V1 Operational test & Evaluation
Participate in Task Force XXI AWE
ATCCS System Confidence Demo-7

Page 4 of 8 Pages

Exhibit R-2 (PE 0604818A)

1074

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604818A Army Tactical Command and Control
Hardware & Software

DC34

A. Project Cost Breakdown

	FY 1995	FY 1996	FY 1997
System Engineering and Integration Support	10151	10408	8645
Total	10151	10408	8645

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or Contract

Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program
TRW	PWD		EAC			1300			1300
CSC	PWD			6192		2430			8622
TBD	PWD					3000	5376	CONT	CONT
MITRE	MIPR			510		1200	340	CONT	CONT
MISC CONTRS	PWD			2589		1728	2205	CONT	CONT
Matrix-CECOM	MIPR			860		750	724	CONT	CONT

Support and Management Organizations: None

Test and Evaluation Organizations: None

Government Furnished Property: None

Subtotal Product Development

Subtotal Support and Management

Subtotal Test and Evaluation

Total Project

	10151	10408	8645	CONT	CONT
	10151	10408	8645	CONT	CONT

Project DC34

Page 5 of 8 Pages

Exhibit R-3 (PE 0604818A)

1075

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604818A Army Tactical Command and Control Hardware & Software								D323	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
D323 Common Hardware Software (CHS)		8187	7755	7784	7730	7627	7461	7412	Continuing	Continuing	
<p>A. Mission Description and Justification: Project D323 Common Hardware Software (CHS): The CHS program is the cornerstone upon which the Army must build its integrated efforts for tying together the Army Command and Control Systems. The project provides vehicles (contracts) from which customers can acquire/procure state of the art common hardware/software and associated peripherals to meet their developmental and fielding needs. The project also provides software technology support and command post internal structures within shelters. The common software supports Army, other services and Joint systems.</p> <p>Acquisition Strategy: Common Hardware/Software is the Army's program to equip the ABCS, Corps to foxhole, with common hardware/software. The overall goal is to improve interoperability and lower life cycle costs by standardizing Battlefield Command and Control (C2) automation through centralized buys of non-developmental items (NDI), standardized protocol and reusable software. Four hardware versions are available to meet specific needs of each BFA: handheld, portable, transportable and lightweight computer unit.</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> 1660 Managed the acquisition and delivery of CHS-1/Lightweight Computer Unit (LCU) equipment in support of customer requirements. Performed Source Selection Evaluation for CHS-2 Re-award. Tested, accepted, and delivered initial CHS-2 hardware and software 1625 Provided Standard Integrated Command Post System (SICPS) Rigid Wall Shelter (RWS), M1068, 5-Ton and Softop platforms in support of BFA requirements 4902 Continued execution of the Common Hardware and Software Reuse programs. Supported joint and DoD C2 programs <p>Total 8187</p> <p>FY 1996 Planned Program:</p> <ul style="list-style-type: none"> 2589 Continue management of the acquisition and delivery of CHS equipment (LCU/CHS-1/CHS-2) in support of customer requirements 3639 Continue execution of Common Hardware and Common Software Reuse programs 905 Continue testing CHS-2 equipment (User Confidence Test, Reliability, First Article Test). Manage total testing program in support of customer requirements 460 Continue exploring state of the art Technology Insertion in support of ABCS 139 SBIR/STTR 23 Revised economic assumption-not available for execution <p>Total 7755</p>											

Project D323

Page 6 of 8 Pages

Exhibit R-2 (PE 0604818A)

1076

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604818A Army Tactical Command and Control
Hardware & Software

D323

FY 1997 Planned Program:

- 2700 Continue management of the acquisition and delivery of CHS equipment (LCU/CHS-2) in support of customer requirements
- 3804 Continue execution of Common Hardware Software Technology and Command Post programs
- 780 Continue supporting customers testing efforts with CHS equipment
- 500 Continue exploring state of the art Technology Insertion in support of ABCS
- Total 7784

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustments to (FY 1995)

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

8348

8187

FY 1996

8030

FY 1997

8013

7833

-78

-229

7755

7784

Change Summary Explanation:

Funding: FY 96: (-78) the portion of this program that has been proposed for rescission.

FY97: (-229) reduction due to revised inflation rates.

C. Other Program Funding Summary: Not Applicable

D. Schedule Profile

	FY 1995			FY 1996			FY 1997		
	1	2	3	4	1	2	3	4	
CHS-2 Contract Canceled (Protest)	X*								
CHS-2 Contract Re-Award									
CHS-2 Production Delivery V-1 Start									
CHS-2 Production Delivery V-2/V3 Start									
Last LCU orders processed									
Last CHS-1 orders processed									
*Milestone Complete									

Project D323

Page 7 of 8 Pages

Exhibit R-2 (PE 0604818A)

1077

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE										PROJECT
5 - Engineering and Manufacturing Development		0604818A Army Tactical Command and Control Hardware & Software										D323
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997								
Program Management Personnel		5215	4595	4826								
Contract Engineering Support		2972	2998	2958								
SBIR/STTR			139									
Revised economic assumptions - not available for execution			23									
Total		8187	7755	7784								
B. Budget Acquisition History and Planning Information												
Performing Organizations												
Contractor or Government	Method/Type of Contract	Award or Obligation	Performing Activity	Project Office	Total Prior to FY 1995	FY 1995	FY 1996	FY 1997	Budget to Complete	Total Program		
Activity	Vehicle	Date	EAC	EAC								
Product Development Organizations												
Matrix-CECOM												
MISC Contrs												
Support and Management Organizations												
In-House (CHS)												
Test and Evaluation Organizations: None												
Government Furnished Property: None												
Subtotal Product Development												
Subtotal Support and Management												
Subtotal Test and Evaluation												
Total Project												
Project D323												
Page 8 of 8 Pages												
Exhibit R-3 (PE 0604818A)												

1078

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604820A Radar Development

COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	11385	0	0	0	0	0	0	0	141857
DE10 FAAD Ground Based Sensor	5276	0	0	0	0	0	0	0	135748
D21T FAAD C3I Oper Test	6109	0	0	0	0	0	0	0	6109

Mission Description and Budget Item Justification: The Forward Area Air Defense Ground Based Sensor (FAAD GBS), AN/MPQ-64, consists of a radar-based sensor with its prime mover/power, identification friend or foe (IFF), and FAAD Command, Control, and Intelligence (C2I) interfaces. The sensor is an advanced three dimensional battlefield X-Band air defense phased-array radar with an instrumented range of 40 km. The GBS is capable of operating day or night, in adverse weather conditions, in the battlefield environments of dust, smoke, aerosols, and enemy countermeasures. It provides 360 degree azimuth coverage for acquisition tracking. The GBS contributes to the digital battlefield by automatically detecting, classifying, identifying, and reporting targets (cruise missiles, and unmanned aerial vehicles (UAV's), rotary wing and fixed wing aircraft). Targets can be hovering to fast moving, as well as, from nap of the earth to the maximum engagement altitude of FAAD weapons. Very accurate and quick reacting, GBS acquires targets sufficiently forward of the Forward Line of Troops to improve FAAD weapon reaction time and allow engagement at optimum ranges. The GBS integrated IFF reduces the potential for fratricide of Army Aviation and Air Force aircraft. Highly mobile and reliable, the GBS Anti-Radiation Missile and Electronic Countermeasures support Army Corps and Divisional Air Defense operations across the full spectrum of conflict. These projects are related to an engineering and manufacturing development program for service use that received approval in 1995 for full-rate production. Budget Activity 5 is therefore appropriate:

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE _____

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

5 - Engineering and Manufacturing Development

0604820A Radar Development

**PROJECT
DE10**

Change Summary Explanation:

Funding: FY 95 reprogramming to 0604820A/DL18 for SHORTSTOP (-500)

C. Other Program Funding Summary

Other Procurement, Army-2 (SSN WK 5053)
Spares (BS 9732)

To	Total
<u>Compl</u>	<u>Cost</u>
continues	continues
continues	continues

<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
63680	61882	51226	44715	42154	60530	64476
	2552	3614	5370	5572	0	0

D. Schedule Profile

FY 1995
2 3

FY 1996 3

FY 1997 2 3

4

IOTE Complete

 \bar{X}^*

In-Process Review

 \bar{X}^*

Award LRIP Option

Milestone III ADM

***X**

FUE Pre-Production

 \mathbf{X}^*

Award 1st FSP Option

X

Award 2nd FSP Option

X

X

*** Milestone Completed**

Project DE10

Page 3 of 7 Pages

Exhibit R-2 (PE 0604820A)

1081

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	March 1996	PROJECT
BUDGET ACTIVITY		PE NUMBER AND TITLE				DE10
5 - Engineering and Manufacturing Development		0604820A Radar Development				
A. Project Cost Breakdown		FY 1995	FY 1996	FY 1997		
Contractor Engineering and Manufacturing Support		320				
Test Support		2097				
Engineering Support		2859				
Total		5276				
B. Budget Acquisition History and Planning Information						
Performing Organizations						
Contractor or Government	Method/Type or Contract					
Performing Activity	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1995	FY 1996	FY 1997
Product Development Organizations						
Hughes Aircraft Company	C/FFP Feb 92	56836	56836	56516	320	56836
MICOM	MIPR			15845	2859	18704
Other/Misc	MIPR			5270	0	5270
Support and Management Organizations						
MICOM	MIPR			20125		20125
Other/Misc	MIPR			1707		1707
Test and Evaluation Organizations						
OPTEC	MIPR			22131	2049	24180
Other/Misc				7793		7793
TECOM	MIPR			1085	48	1133
Government Furnished Property: None						
Subtotal Product Development				77631	3179	80810
Subtotal Support and Management				21832	0	21832
Subtotal Test and Evaluation				31009	2097	33106
Total Project				130472	5276	135748
Project DE10		Page 4 of 7 Pages				Exhibit R-3 (PE 0604820A)

1082

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

BUDGET ACTIVITY		PE NUMBER AND TITLE										DATE	PROJECT																																																																											
5 - Engineering and Manufacturing Development		0604820A Radar Development										March 1996	D2IT																																																																											
	COST (In Thousands)	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost																																																																														
D2IT	FAAD C3I Oper Test	6109	0	0	0	0	0	0	0	6109																																																																														
<p>A. Mission Description and Budget Item Justification: Project D2IT finances the direct costs of planning and conducting operational testing and evaluation of the Forward Area Air Defense Command, Control, Communications and Intelligence (FAAD C3I) system by the Operational Test and Evaluation Command (OPTEC). The FAAD C3I is an Acquisition Category (ACAT) I system with a dedicated Initial Operational Test and Evaluation (IOTE) in FY 95 in support of a Milestone III full production decision. (In FY 95 and beyond, funding for operational testing of ACAT I systems is programmed with PE funding development for each system. Future fiscal years will be reprogrammed when system information becomes available.) Operational testing is conducted under conditions, as close as possible, to those encountered in actual combat with typical soldiers trained to employ the system. OPTEC provides Army leadership with an independent test and evaluation of effectiveness and suitability of the system.</p> <p>Acquisition Strategy: Not applicable</p> <p>FY 1995 Accomplishments:</p> <ul style="list-style-type: none"> • 285 Conducted FAAD C3I Test Preparation • 4910 Conducted FAAD C3I Operational Test • 914 Conducted Evaluation of FAAD C3I <p>Total 6109</p> <p>B. Project Change Summary:</p> <table> <tr> <td>Previous President's Budget (FY 1996)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Appropriated Value (FY 1995)</td> <td>4951</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustments to FY 1995</td> <td>4847</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Appropriated Amount (FY 1996)</td> <td>1262</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustment to FY 1996</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Current President's Budget Submission</td> <td>6109</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>Change Summary Explanation: Funding: FY 95 Reprogramming for FAAD GBS Test (+1262)</p>												Previous President's Budget (FY 1996)											Appropriated Value (FY 1995)	4951										Adjustments to FY 1995	4847										Appropriated Amount (FY 1996)	1262										Adjustment to FY 1996	0										Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget											Current President's Budget Submission	6109									
Previous President's Budget (FY 1996)																																																																																								
Appropriated Value (FY 1995)	4951																																																																																							
Adjustments to FY 1995	4847																																																																																							
Appropriated Amount (FY 1996)	1262																																																																																							
Adjustment to FY 1996	0																																																																																							
Adjustments to Budget Year (FY 1997) since FY 1996 President's Budget																																																																																								
Current President's Budget Submission	6109																																																																																							

Project D2IT

Page 5 of 7 Pages

Exhibit R-2 (PE 0604820A)

1083

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

March 1996

PE NUMBER AND TITLE

0604820A Radar Development

**PROJECT
D2IT**

Other Procurement, Army-2 (SSN WK 5053)
Spares (BS 9732)

To	Total
<u>Compl</u>	<u>Cost</u>
continues	continues
	continues

**FAAD C3I Test Preparation
FAAD C3I Oper Test
Evaluation C3I Test Results
Milestone III C3I DAB**

FY 1997 2 3

*** Milestone Completed**

Page 6 of 7 Pages

Exhibit R-2 (PE 0604820A)

1084

UNCLASSIFIED

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT
D2IT

5 - Engineering and Manufacturing Development

0604820A Radar Development

A. Project Cost Breakdown

Test Preparation	FY 1995	FY 1996	FY 1997
	285	0	0
Operational Test	4910	0	0
Test Evaluation	914	0	0
Total	6109	0	0

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor or

Government Method/Type

Performing or Funding

Award or Obligation

Date

Vehicle

Performing Activity

EAC

Project Office

EAC

Total

Prior to

FY 1995

FY 1996

FY 1997

Budget to

Complete

Total

Program

6109

6109

6109

6109

6109

6109

6109

6109

6109

6109

6109

6109

6109

6109

6109

Project D2IT

Page 7 of 7 Pages

Exhibit R-3 (PE 0604820A)

1085

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE	March 1996
BUDGET ACTIVITY		PE NUMBER AND TITLE								PROJECT	
5 - Engineering and Manufacturing Development		0604823A Firefinder								DL85	
COST (In Thousands)		FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	Cost to Complete	Total Cost	
DL85 FIREFINDER Pre-Planned Product Improvement		0	0	551	2839	13234	25982	28422	Continuing	Continuing	
<p>A. Mission Description and Budget Item Justification: The FIREFINDER Pre-Planned Product Improvement (P3I) program will upgrade the AN/TPQ-37 Artillery Locating Radar by replacing the Antenna Transceiver Group (ATG). This upgrade is in response to the approved Mission Need Statement (MNS) for the Advanced FIREFINDER System which describes an urgent need for a more survivable, longer range and less manpower intensive radar. This upgrade will double the current range performance and improve the target throughput to 50 targets per minute in a highly mobile, transportable and survivable system. The FIREFINDER P3I will also be capable of missile detection at maximum ranges of 150-300KM depending on the target radar cross section. The system will be capable of C-130 Roll on/Roll off transportability for rapid deployment. Crew size will be reduced. This program will also leverage off the AN/TPQ-36(V)8 Electronics Upgrade program to provide a modern shelter and radar signal processor. The FIREFINDER P3I will be integrated into the targeting structure by interfacing with such systems as current and projected Unmanned Aerial Vehicles (UAV), Theater Missile Defense (TMD) systems and others including Theater High Altitude Area Defense (THAAD), Joint Surveillance and Target Attack Radar System (JSTARS), and Advanced Field Artillery Tactical Data System (AFATDS). A new PE/Project beginning in FY97 was established for this Materiel Change (MC). This MC will be in the Engineering and Manufacturing Development phase of the acquisition cycle and is therefore correctly placed in Budget Activity 5.</p> <p>Acquisition Strategy: A replacement for the Antenna Transceiver Group will be developed as an upgrade to the AN/TPQ-37 on a competitive basis.</p> <p>FY 1995 Accomplishments: Project Start FY97</p> <p>FY 1996 Planned Program: Project Start FY97</p> <p>FY 1997 Planned Program:</p> <ul style="list-style-type: none"> • 310 Prepare program and cost documentation to support a Milestone II decision • 175 Prepare and release draft solicitation for industry comment • 66 Issue solicitation to award an EMD contract in FY98 <p>Total 551</p>											

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

March 1996

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

5 - Engineering and Manufacturing Development

0604823A Firefinder

DL85

B. Project Change Summary

Previous President's Budget (FY 1996)

Appropriated Amount (FY 1995)

Adjustment to FY 1995

Appropriated Amount (FY 1996)

Adjustment to FY 1996

Adjustments to Budget Year (FY 1997) since

FY 1996 President's Budget

Current President's Budget Submit

FY 1995

FY 1996

FY 1997

570

-19

551

Change Summary Explanation:

Funding: FY97 Revised inflation rates (-19)

C. Other Program Funding Summary

Other Procurement, Army 2

SSN: BA5500 FIREFINDER P3I

To
Compl
830000
Total
Cost
900002FY 1995 FY 1996 FY 1997 FY 1998 FY 1999 FY 2000 FY 2001
70072**D. Schedule Profile**

Prepare documentation for Milestone II

Obtain Milestone II Approval

Prepare and release draft solicitation

Issue solicitation for EMD FY98 award

FY 1995
2 3

4

1

FY 1996

2

3

4

FY 1997

2

3

4

X

X

X

X

Project DL85

Page 2 of 3 Pages

Exhibit R-2 (PE 0604823A)

1087

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

March 1996

PE NUMBER AND TITLE

0604823A Firefinder

DL85

[illegible]

Page 3 of 3 Pages

Exhibit R-3 (PE 0604823A)

1088

UNCLASSIFIED

UNCLASSIFIED

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES
MAILING LIST

PRINT

ADDRESS

1	USD (Policy), DUSD(R&P), Pentagon, Room 1C469, Washington, DC 20301-2100
2	DOD Compt, MS, DMI, Pentagon, Room 1B728, Washington, DC 20310-1100
2	OSD, ATTN: DOT&E, Pentagon, Room 3E318, Washington, DC 20310
1	ASD(RA), Pentagon, Room 3E325, Washington, DC 20310
12	ASD(C3I), Pentagon, Room 3E209, Washington, DC 20310
1	ASD(ISA), Pentagon, Room 4B938, Washington, DC 20310
2	ASD(LA), Pentagon, Room 3D918, Washington, DC 20310
2	USD(P&R), 4000 Defense Pentagon, Room 3C980, Washington, DC 20310-4000
1	ASD(HA), Pentagon, Room 3E321, Washington, DC 20310
1	ASD(PA&E)/GPP/LFD, Pentagon, Room 2B256, Washington, DC 20310
1	ASD (PA&E), Pentagon, Room 2E313, Washington, DC 20310
16	JCS(J-8), Pentagon, Room 1E963, Washington, DC 20310
1	HQDA, (SAUS-OR), Pentagon, Room 2E600, Washington, DC 20310
1	HQDA (SAIL&E), Pentagon, Room 2E614, Washington, DC 20310
1	HQDA (SARD-DEP), Pentagon, Room 2E673, Washington, DC 20310
1	HQDA (SAFM-CAZ-A), 5611 Columbia Pike, Falls Church, VA 22041-5050
1	HQDA (SFIS-API), Hoffman 1, Room 1012, Alexandria, VA 22331-0302
6	HQDA (DACS-DPD), Pentagon, Room 3C738, Washington, DC 20310
1	HQDA (DACS-DPA), Pentagon, Room 1C460, Washington, DC 20310
7	HQDA (SAIS-PPG), Pentagon, Room 1D679, Washington, DC 20310
4	HQDA (DACS-DPA), Pentagon, Room 3C747, Washington, DC 20310
1	HQDA (DACS-DMC), Pentagon, Room 3D631, Washington, DC 20310
1	HQDA (DACS-TE), Pentagon, Room 3C571, Washington, DC 20310
1	HQDA (DAIM-ZR), Pentagon, Room 2B683, Washington, DC 20310
1	HQDA (DAMI-ZXM)(Mr. Bromwell), Pentagon, Room 2D474, Washington, DC 20310
1	HQDA (DAMI-PBB), Pentagon, Room 2E477, Washington, DC 20310

UNCLASSIFIED

UNCLASSIFIED

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES
MAILING LIST

PRINT

ADDRESS

2	HQDA (DAPE-ZXO), Pentagon, Room 2D735, Washington, DC 20310	
2	HQDA (DALO-RMP), Pentagon, Room 1E565, Washington, DC 20310	
1	HQDA (DALO-ZA), Pentagon, Room 3E560, Washington, DC 20310	
2	HQDA (DAMO-ZR), Pentagon, Room 3D526, Washington, DC 20310	
12	HQDA (DAMO-FDR), Pentagon, Room 2D570, Washington, DC 20310	
1	HQDA (DAAR-CO), Pentagon, Room 1D432, Washington, DC 20310	
1	HQDA (NGB-ZA), Pentagon, Room 2E394, Washington, DC 20310	
1	HQDA (DASG-ZA), 5111 Leesburg Pike, Room 638, Falls Church, VA 22041-3258	
1	HQDA (DASG-RMZ), 5111 Leesburg Pike, Room 554, Falls Church, VA 22041-3258	
2	HQDA (DASG-RDZ), Pentagon, Room 3E368, Washington, DC 20310-2300	
1	HQDA (DAIM-ED), Pentagon, Room 1E682, Washington, DC 20310	
1	HQDA (DAIM) Pentagon, Room 1E665, Washington, DC 20310	
1	HQDA (SAPA-), Pentagon, Room 2E641, Washington, DC 20310	
2	HQDA (CSSD-RM-W), P.O. Box 15280, Arlington, VA 22215-0150	
1	HQDA (SAAG-PRP), Room 1309, 3101 Park Center Drive, Alexandria, VA 22302-1596	
1	HQDA (DAMH-ZB), Pulaski Bldg, Room 4229, 20 Massachusetts Avenue, Washington, DC 20314	
1	US Army Cost And Economic Analysis Center, ATTN: SFFM-CA-PL, 5611 Columbia Pike, Falls Church, VA 22041-5050	
1	BMDO/RM, Pentagon, Room 1E1037, Washington, DC 20310	
1	OASN(RES), Pentagon, Room 5E779, Washington, DC 20310	
2	HQ, U.S. European Command, ATTN: ECCM-B, APO New York 09128	
1	HQDA, (JDRS-PBD), Pentagon, Room 1E610, Washington, DC 20310	
2	HQ, PACOM, R&D Requirements (J531), BOX 15, USPACOM Staff, Camp H.M. Smith, HI, 96861	
2	Commander, US Army Intelligence and Security Command, ATTN: IARM-PB, Fort Belvoir, VA 22060-5370	
1	Commander, US Army Nuclear and Chemical Agency, ATTN: MONA-OPS, Bldg 2073, Backlick Road, Springfield, VA 22150	
1	Commander, US Army Medical R&D Command, ATTN: SGRD-RMC, Fort Detrick, Frederick, MD 21701-5012	
2	Commander, US Army Medical R&D Command, ATTN: SGRD-PR, Fort Detrick, Frederick, MD 21701-5012	

UNCLASSIFIED

UNCLASSIFIED

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES
MAILING LIST

PRINT

ADDRESS

10	Commander, US Army Training and Doctrine Command, ATTN: ATCD-E, Fort Monroe, VA 23651-5000
1	CMDT, Army Field Artillery School, ATTN: ATSF-CSI-P, ATSF-CBL, Ft. Sill, OK 73503-5600
1	CDR, Army Aviation Ctr & Ft. Rucker, ATTN: ATZS-CDI, Ft. Rucker, AL 36362-5000
1	CDR, Army Intelligence Ctr and FT. Huachuca, ATTN: ATZS-CDI-I, ATZS-CDT, Ft. Huachuca, AZ 85613-7000
1	CMDT, U.S. Army Signal Ctr, ATTN: ATZH-CDM, ATZH-BLT, Ft. Gordon, GA 30905-5000
1	CDR, USACAC, ATTN: ATZL-CDC, Ft. Leavenworth, KS 66027-5300
1	Force Design Directorate, ATTN: ATCD-F (MAJ Ireland), 415 Sherman Ave., Ft. Leavenworth, KS 66027-5000
1	CDR, USACHCS, ATTN: ATSC-CD (SFC Scott), Ft. Monmouth, NJ 07703-5612
1	CDR, U.S. Army Medical Center & School, ATTN: HSMC-FCM, Ft. Sam Houston, TX 78234
1	CMDT, U.S. Army Air Defense Artillery School, ATTN: ATSA-CDM, Ft. Bliss, TX 79916
1	CMDT, U.S. Army Infantry School, ATTN: ATSH-IWC, ATSH-MLS, Ft. Benning, GA 31905-5400
1	CMDT, U.S. Army Armor School, ATTN: ATZK-CD-ML, ATZK-MW, Ft. Knox, KY 40121-5200
1	CMDT, U.S. Army Engineer School, ATTN: ATSE-CD-M, Ft. Leonard Wood, MO 65473-5000
1	CMDT, U.S. Army Chemical School, ATTN: ATZN-CM-CS, Ft. McClellan, AL 36205-5020
1	CMDT, U.S. Army Military Police School, ATTN: ATZN-MP-CM, Ft. McClellan, AL 36205-5020
1	CMDT, Finance School, ATTN: ATZI, Bldg 4000, 8899 E. 56 Street, Indianapolis, IN 46216
1	Commander, US Army Research Institute for the Behavioral and Social Sciences, ATTN: PERI-MB, 5001 Eisenhower Avenue, Alexandria, VA 22333-5600
4	Commander, US Army Operational Test and Evaluation Command, ATTN: CSTE-RMZ, Park Center IV, 4501 Ford Avenue, Alexandria, VA 22302-1458
25	Commander, US Army Materiel Command, ATTN: AMCRD-AB, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001
2	Commander, US Army Materiel Command, ATTN: AMCAE-P, 5001 Eisenhower Avenue, Alexandria, VA 22333
3	Commander, US Army Materiel Command, ATTN: AMCAQ-B-TILO, 5001 Eisenhower Avenue, Alexandria, VA 22333
2	Commander, US Army Armament, Munitions and Chemical Command, ATTN: AMSMC-RT, Rock Island, IL 61299-6000
2	Commander, US Army Communications-Electronics Command, ATTN: AMSEL-CG, Ft. Monmouth, NJ 07703-5000
1	Commander, US Army Communication-Electronics Command, ATTN: AMSEL-ACSB-BT, Ft. Monmouth, NJ 07703-5008
5	Commander, US Army Missile Command, ATTN: AMSMI-AS (Library), Bldg 5250, RMC-147, Redstone Arsenal, AL 35898-5000

UNCLASSIFIED

UNCLASSIFIED

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES
MAILING LIST

PRINT

ADDRESS

2	Commander, US Army Test and Evaluation Command, ATTN: AMSTE-RM, Aberdeen Proving Ground, MD 21005-5055
2	Commander, US Army Tank-Automotive Command, ATTN: AMSTA-CG, Warren, MI 48397-5000
2	Commander, US Army Laboratory Command, ATTN: AMSLC-CG, Adelphi, MD 20783-1145
1	Commander, US Army Armament Research, Development and Engineering Center, ATTN: SMCAR-CO, Dover, NJ 07806-5000
1	Commander, Environmental Center, ATTN: SFIM-AEC-RM, Edgewood Area, Aberdeen Proving Ground, MD 21010-5055
2	Commander, US Army Materiel Systems Analysis Activity, ATTN: AMXSY-PB, Aberdeen Proving Ground, MD 21005-5071
1	Commander, US Army Chemical, Biological and Defense Command, ATTN: AMSCB-RR, Aberdeen Proving Ground, MD 21010-5423
1	Commander, US Army Chemical, Biological and Defense Command, ATTN: SCBRD-ASA, Aberdeen Proving Ground, MD 21010-5423
1	Commander, US Army Chemical, Biological and Defense Command, ATTN: AMSCB-EO, Aberdeen Proving Ground, MD 21010-5423
4	Commander, US Army Aviation and Troop Command, ATTN: AMSAT-D-C, 4300 Goodfellow Blvd, St. Louis, MO 63120-1798
2	Program Manager, Instrumentation, Targets and Threat Simulators, ATTN: AMCPM-ITTS, 12350 Research Parkway, Orlando, FL 32826
1	Program Manager, Tank Main Armament Systems, ATTN: AMCPM-TMD PMD, Picatinny Arsenal NJ 07806-5000
2	Program Executive Officer, Missile Defense, ATTN: SFAE-MD-DP-P, Building 5250, Redstone Arsenal, Alabama 35898-5750
2	Program Executive Officer, Field Artillery Systems, ATTN: SFAE-FAS, Building 171, Picatinny Arsenal, Picatinny, NJ 07806-5000
2	Program Executive Officer, Armored Systems Modernization, ATTN: SFAE-HFM-P, Warren, MI 48397-5000
2	Program Executive Officer, Aviation, ATTN: SFAE-AV, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798
2	Program Executive Officer, Tactical Wheeled Vehicles, ATTN: SFAE-TWV, Warren, MI 48397-5000
2	Program Executive Officer, Command and Control Systems, ATTN: SFAE-CC-PMO, Ft. Monmouth, NJ 07703-5000
2	Program Executive Officer, Communication Systems, ATTN: SFAE-COM, Ft. Monmouth, NJ 07703-5000
2	Program Executive Officer, Tactical Missiles, ATTN: SFAE-MSL, Redstone Arsenal, AL 35898-8000
2	Program Executive Officer, Intelligence and Electronic Warfare, ATTN: SFAE-IEW-BM, Ft. Monmouth, NJ 07703
3	Commander, US Army Space and Strategic Defense Command, ATTN: CSSD-RM-BP, P.O. Box 1500, Huntsville, AL 35807-3801
2	Commander, US Army Corps of Engineers, ATTN: CERD-L, Washington, DC 20314
1	Commander, US Army Force Integration support agency, ATTN: MOFI-TRED-O, Building 2588, Fort Belvoir, VA 22060-5587
1	Commander, 902d MI Group, ATTN: IAGPA-OPOP, Ft. Meade, MD 20755-5910
1	Commander, HQ US Army Missile & Space Intelligence Center, ATTN: AIAMS-YCC, Redstone Arsenal, AL 35898-5000

UNCLASSIFIED

UNCLASSIFIED

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES
MAILING LIST

PRINT

ADDRESS

1	Commander, US Army Countermeasures/Counter Counter measures Center, ATTN: AMX-CM-RF, 2800 Powder Mill Rd, Adelphi, MD 2078
1	Commander, US Army Belvoir Research, Development & Engineering Center, ATTN: STRBE-Z, Ft. Belvoir, VA 22060-5606
2	Commander, US Army Research Office, ATTN: SLCRO-AO (Security Officer), P.O. Box 12211, Research Triangle Park, NC 27709
1	Director, DMA Aerospace Center, ATTN: STT, 3200 South Second Street, St. Louis, MO 63118
1	Director, DMA Hydrographic/Topographic Center, ATTN: ST(STT), 6500 Brookes Lane, Washington, DC 20315
3	Director, Harry Diamond Laboratories, ATTN: DELHD-PO-P, 2800 Powder Mill Rd., Adelphi, MD 20783-1197
2	Director, AIRMICS, 1150 O'Keefe boulevard, Georgia Institute of Technology, Atlanta, GA 30332-0800
1	DOD Explosives Safety Board, Hoffman Building 1, Room 856C, 2461 Eisenhower Avenue, Alexandria, VA 22331-0600
3	Executive Office of the President, Office of Management and Budget, National Security Division, Room 10001, Washington, DC 20503
1	Director, Joint Tactical Command, Control & Communication Agency, ATTN: C3A-PPBA, Ft. Monmouth, NJ 07702
1	Headquarters, Central Intelligence Agency, ATTN: OGI/CTID/DI, Room 3G30, Washington, DC
1	Central Intelligence Agency, ATTN: OSWR/SDT, P.O. Box 1925, Washington, DC 20505
1	DOD Assistant Inspector General for Auditing, AM Division, Room 725, 400 Army-Navy Drive, Arlington, VA 22202
2	Inspector General, ATTN: A&IM/FMD, 400 Army-Navy Drive Arlington, VA 22202-2884
12	US General Accounting Office, ATTN: NSIAD, Room 4103, 441 G Street, N.W., Washington, DC 20548
1	Chief of Naval Operations, Navy Department, ATTN: OP-987, Pentagon, Room 5D760, Washington, Dc 20350-2000
2	Office of Naval Research, Science and Technology Directorate, ATTN: 03B, 800 North Quincy Street, Arlington, VA 22217
2	Commander, Naval Weapons Center, ATTN: Code 128 (R&D Planning Program Director), China Lake, CA 93555
2	Commander, Naval Surface Weapons Center, ATTN: Technical Library E432, White Oad, Silver Spring, MD 20910
1	SAF/AQXR, Pentagon, Room 4C347, Washington, DC 20330-6010
2	HQ USAF/FMBMC, Pentagon, Room 5C129, Washington, DC 20330-5012
4	HQ US Marine Corps, Deputy Chief of Staff for RD&S, Code (MC-RDP-30), Washington, DC 20380
2	Commandant, US Army War College, ATTN: Library, Carlisle Barracks, PA 17013-5050
2	HQ Defense Mapping Agency, ATTN: RE, 8613 Lee Highway, Fairfax, VA 22031-2137
1	Defense Nuclear Agency, ATTN: Comp-2.2, 6801 Telegraph Road, Alexandria, VA 22310
1	Advanced Research Projects Agency, ATTN: Comptroller, 3701 North Fairfax Drive, Arlington, VA 22203-1714

UNCLASSIFIED

UNCLASSIFIED

APPENDIX A

RDT&E CONGRESSIONAL DESCRIPTIVE SUMMARIES
MAILING LIST

PRINT

ADDRESS

1	National Defense Headquarters, ATTN: DLPC (TRADOC LO), 101 Colonel By Drive, Ottawa, Ontario, Canada K1A 0K2
1	Institute for Defense Analyses, 1801 North Beauregard Street, Alexandria, VA 22311
1	Headquarters, National Aeronautical and Space Administration, Code ID, ATTN: Deputy DOD Affairs, Washington, DC 20546
1	ACDA/NWC/DPA, Room 5741, 320 21st Street, N.W., Washington, DC 20451
2	Pentagon Library, ATTN: Army Studies, Room 1A518, Washington, DC 20310
2	System Planning Corporation, Technical Library, 1500 Wilson Boulevard, Arlington, VA 22209
1	Director, Defense Finance and Accounting Service-Indianapolis Center, ATTN: DFAS-I-PA, Indianapolis, IN 46249
2	Defense Technical Information Center (DTIC), ATTN: Ms. Mawby, Cameron Station, Bldg 5, 5010 Duke Street, Alexandria, VA 22304-61

HAND DELIVERY

1	DOD(C)(P&S), Room 3A862
3	DOD(C)(INV), Room 4B916
1	DOD(C)(MILCON), Room 3D841
27	USD(A) MAILROOM, Room 3D139
13	SAFM-BUL, Room 3A652
2	SAFM-BUC-F, Room 3B663
2	SAFM-BUC-I, Room 3A674
2	SAFM-RB, Room 3A720
33	SALL, Room 2C638
94	SAFM-BUI-A, Room 3D400

TOTAL PRINT

480

Any changes to this distribution list should be provided to HQDA (SAFM-BUI-A), Washington, DC 20310, Autovon, 224-8694.

UNCLASSIFIED